



## The Technique of Inlay Making by the Direct and Indirect Method.

By F. T. VAN WOERT, M.D.S., Brooklyn, N. Y.

### III.

#### The Technique of Taking Impressions — Continued.

The location and form of the cavities described in the last chapter make them comparatively simple for the impression method; but those in the approximal surfaces, and particularly when complicated by extensions into one or more of the other surfaces, often tax one's ingenuity and dexterity to the extreme. A few of this sort follow:

Fig. 26 shows a cavity in the labial approximal surface of an upper central incisor. The tray is shaped as shown in Fig. 26, *a*. Note that there is very little metal in excess of that required to completely cover the margins. The advantage of this is, that it minimizes the danger of injury or laceration to the adjacent soft tissues and prevents overhangs, which might cause difficulty in the removal of the impression. As in the previous cases, a suitable amount of compound is attached to the tray and formed in an oval mass. The surface is heated rapidly and it is then placed in the cavity, as shown in Fig. 26, *b*, and a small cement spatula is forced between the outer surface of the tray and the adjoining tooth. After cooling and before removing spatula, any excess of compound which may have been forced through and upon the distal surface



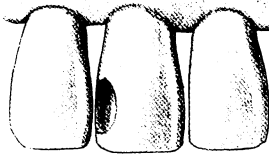


Fig. 26.

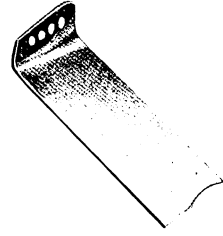


Fig. 26 a.

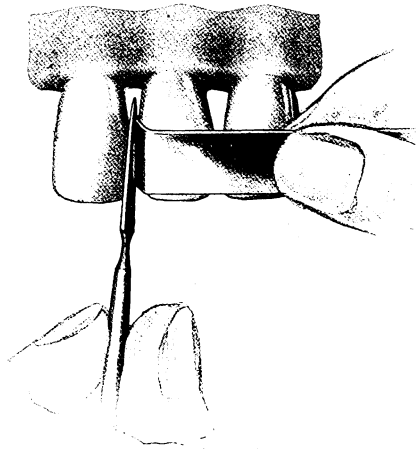


Fig. 26 b.

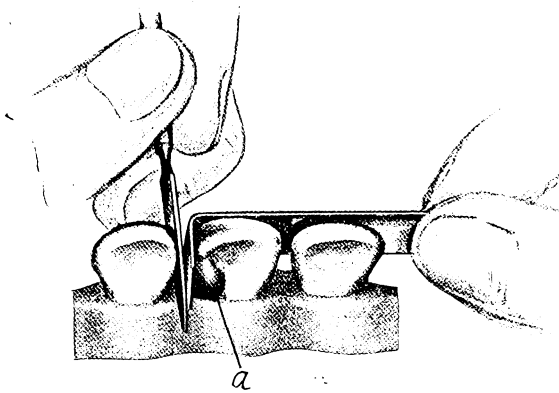


Fig. 26 c.





should be cut away with a small bistoury lance (Fig. 26, *c*, at *a*). The spatula is first removed and should the impression loosen or come away with it another one should be taken, as in all cases it should require some force to dislodge the impression from its seat in the cavity.

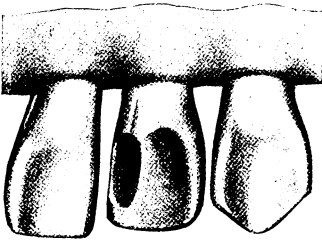


Fig. 27.

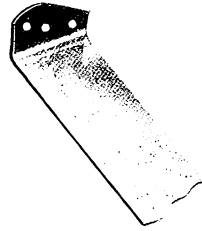


Fig. 27 *a*.

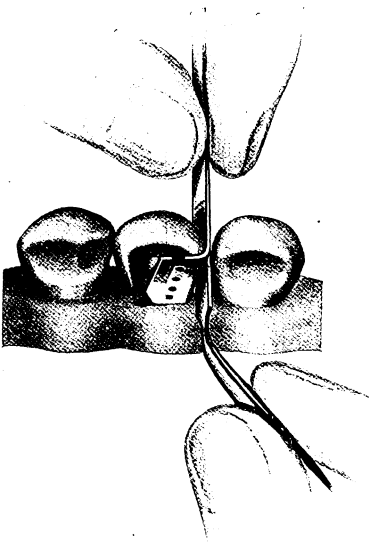


Fig. 27 *b*.



In the lingual approximal surface (Fig. 27) a similar tray is necessary (Fig. 27, *a*), but its bent end is curved to fit the lingual surface. It is pulled up to place and a curved spatula inserted from the lingual surface, as seen in Fig. 27, *b*, and its further treatment is identical with the previous case.



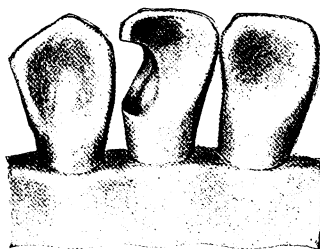


Fig. 28.

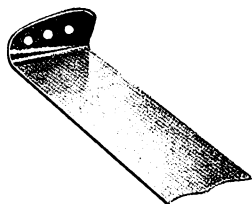


Fig. 28 a.

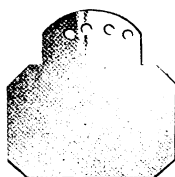


Fig. 28 b.



Fig. 28 c.

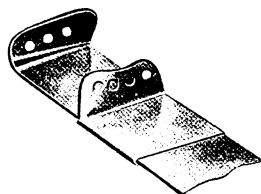


Fig. 28 d.

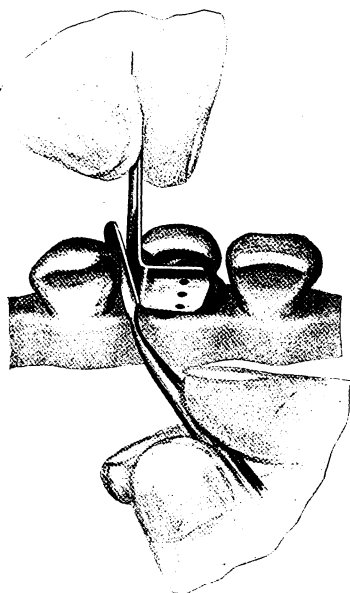


Fig. 28 e.

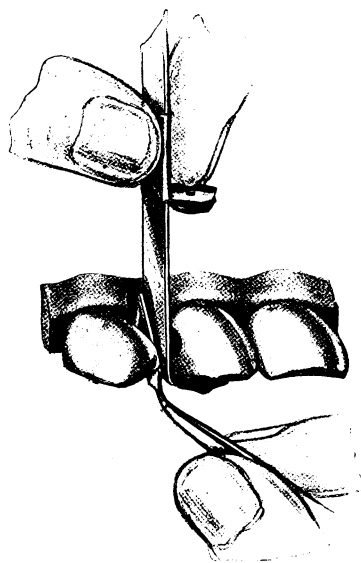


Fig. 28 f.



Perhaps one of the most difficult cavities to take an impression of, and one that it is nearly impossible to get a direct matrix out of without distortion, is one involving the approximal and both the labial and lingual surfaces, as in Fig. 28. For such a case a tray is made in two sections. The first is like that shown in Fig. 28, *a*. The second is cut to shape as depicted in Fig. 28, *b*, and bent as in Fig. 28, *c*. This should fit the first section so that there is no lost motion laterally and at the same time slide up and down freely (Fig. 28, *d*).

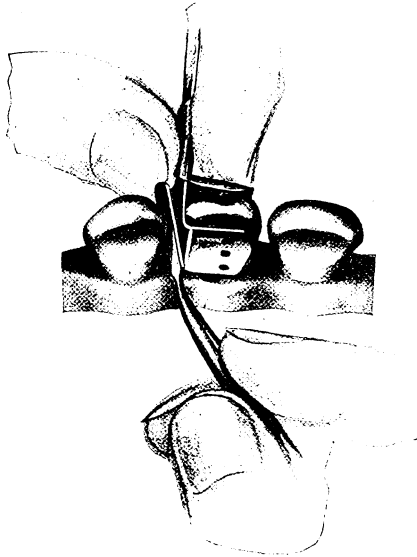


Fig. 28 *g*.

The impression is taken by introducing the compound lingually on the first section (Fig. 28, *e*). The spatula should be held in place by an assistant at the angle shown, so that it will not interfere with the second part of the tray when it is subsequently forced into place. The surplus compound is then removed and that remaining in the cavity carved to the contour of the labial surface and flush with the cavity margin, as shown in Fig. 28, *f*. The surface of the tooth and the carved impression is coated with vaseline, and the second section is prepared by attaching a small amount of the compound to the right angle projection, as seen in Fig. 28, *f*, being careful not to have more than enough of the compound, as it is desirable to avoid its flowing beyond the margins of its attachment. Also be sure that the plate or projection is bent to accurately



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conform to the surface of the tooth involved, so that an even pressure will be exerted. The compound is now heated, and this section is slipped over the first pressed to place (see Fig. 28, g) and cooled rapidly, preferably with compressed air or a spray of cold water. The second section is then removed, then the spatula, and lastly the first section. If the technique is carefully followed out, on putting the two sections together out of the mouth, it will be impossible to detect the line of union between the two sections of the impression, even with a magnifying glass. The

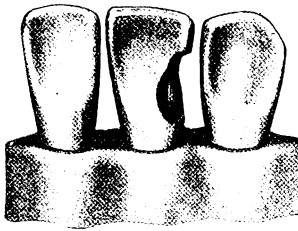


Fig. 29.

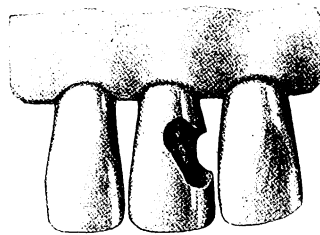


Fig. 30.

sections should be firmly united with a little sticky wax and cooled quickly in cold water. Its further treatment will be given later in a section on die making. This section method is applicable to a variety of cavities, two of which are shown in Figs. 29 and 30.

It is understood, of course, that in the gold inlay there are no such complications as we meet with in the porcelain, because of the fact that there is no overlap, such as we must have in the metal matrix. The wax inlay pattern is trimmed to the exact cavity margin, while in the metal matrix for porcelain there must be enough overlap to give the detail of the cavity margin. This is a distinction that must be made between the two throughout, and as the cases cited are a class requiring porcelain or some material that is not conspicuous, differentiation should be made and due consideration given to the practicability of each case.

### **Approximal Occlusal Cavities in Bicuspids and Molars.**

The approximal surfaces of the bicuspids and molars, in spite of their complications, may be treated by the impression method. For a posterior approximal and occlusal cavity in a bicuspid or molar (Fig. 31) the tray metal is cut to a shape as seen



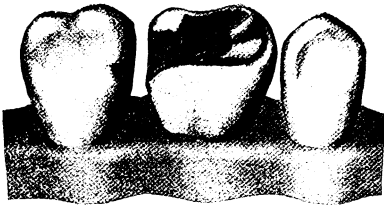


Fig. 31.



Fig. 31 a.



Fig. 31 b.

in Fig. 31, *a*, and is shaped by bending as shown in Fig. 31, *b*. The compound is prepared and attached as in the previous cases, and the tray is carried to position and the cement spatula forced between it and the other tooth. As in the previous cases, the spatula is removed first, after which the impression should come away without distortion, but not without some effort. It will be noted that in taking the impression of this case the handle of the tray extends forward, as it should for convenience. For this reason, when the cavity is in the mesial approximal surface, especially in the molar region, as in Fig. 32, a slight alteration in the form of the tray is necessary in order that the handle may extend forward, while the extension made to cover the approximal and occlusal surfaces may be forced distally. The handle of the tray, therefore, should be bent on itself, as shown in Fig. 32, *a*.

**Complex Molar  
and Bicuspid  
Cavities.**

These two trays, properly curved to cover the margins, will serve for all cavities in bicuspids or molars which are in the occlusal and approximal surfaces only. When one or more of the other surfaces are involved to such an extent that they must be included in the main cavity, provision must be made in forming the tray so that equal pressure may be brought against all parts of the cavity at the same time, with force at right angles to the margins, in order to obviate the tendency of the modeling compound to crawl away from this, the most important part of the cavity. This has been said before, but

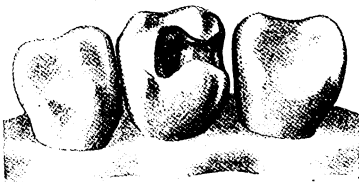


Fig. 32.

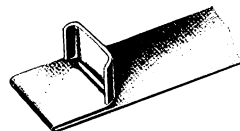


Fig. 32 a.



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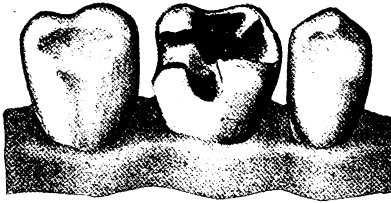


Fig. 33.



Fig. 33 a.

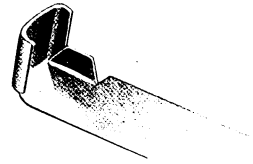


Fig. 33 b.

is here reiterated because it is the fundamental secret of success with the impression method. Without an accurate impression an accurate model of the cavity is impossible, and unless the tray conforms to the original shape of the tooth, with the edges of the tray extending beyond, but accurately adapted to the cavity margins, the impression material will crawl and cause an inaccuracy.

Fig. 33 shows a cavity in a molar where, in addition to the approximal and occlusal surfaces, extension lingually has been necessary. The tray metal is cut as in Fig. 33, *a*, and bent into the form shown in Fig. 33, *b*. This style of tray is also applicable to cavities involving the approximal, occlusal and buccal surfaces. The tray illustrated is for cavities wherein the approximal extension is distal. Where the mesial approximal surface is the one involved, then the handle of the tray should be bent on itself as described in connection with Figs. 32 and 32, *a*.

When the cavity is exclusively in the occlusal surface the procedure is practically the same, as will be described in connection with Fig. 34, which shows an occlusal cavity, with extension into the buccal region. The tray metal should be cut as shown in Fig. 34, *a*, and then bent to the form seen in Fig. 34, *b*. It will be noted that there is a rounded flap

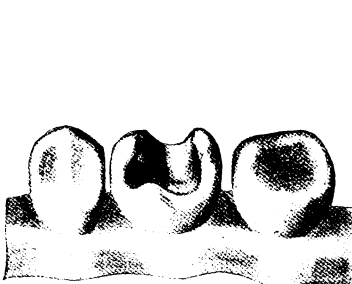


Fig. 34.



Fig. 34 a.

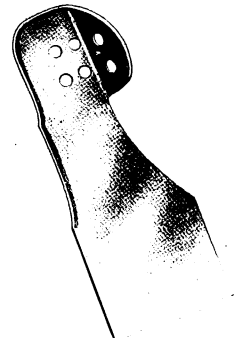


Fig. 34 b.



or extension, bent to cover the buccal surface. This should be long enough to reach over the lowest part of the buccal cavity margin. All edges of the tray are slightly curved so as to accurately fit the tooth surface and force the modeling compound against the margins. This may best be done by placing the tray over the tooth and pressing and burnishing it to form. In trays of this sort, which have no angles or corners made by extensions, it is best to punch holes through the metal

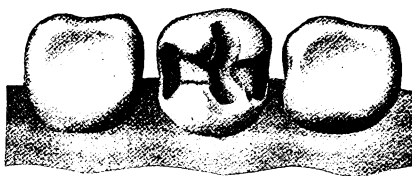


Fig. 35.

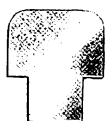


Fig. 35 a.



Fig. 35 b.

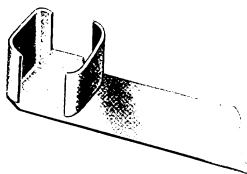


Fig. 35 c.

for the better attachment of the modeling compound, as seen in the illustrations.

Where the complication is still greater, as in Fig. 35, where we see a cavity in a molar which includes the occlusal, buccal and both approximal surfaces, a tray slightly more intricate is required, but is readily made. Such a tray is shown in Fig. 35, c. It will be observed that thus far we have accomplished our purpose in shaping trays without the need of solder, but in this instance one section must be soldered to the other, which, however, is but the work of a moment, using soft solder over the operating bracket lamp, whether it be Bunsen or alcohol flame. The main part of the tray is cut and bent to care for the distal approximal, and the buccal (or lingual, as the case may be), as already described in Figs. 33, 33, a, and 33, b. Provision next must be made for carrying the impression material against the mesial approximal margins. A piece is cut as shown in Fig. 35, a, and bent as shown in Fig. 35, b. The two side flaps of this extra piece are intended to pass around the lingual and buccal margins of the mesial approximal surface, and the other flap



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allows this little extra piece to rest steady upon the major part of the tray, adding convenience to the soldering process. The two soldered together form the complete tray illustrated in Fig. 35, *c*. This is a box-like tray and should be placed over the tooth and all parts bent and



Fig. 36.

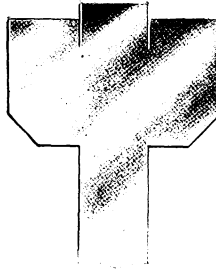


Fig. 36 *a*.

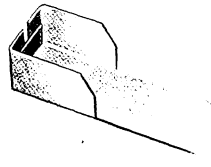


Fig. 36 *b*.

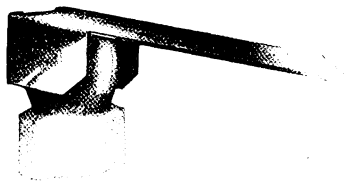


Fig. 36 *c*.

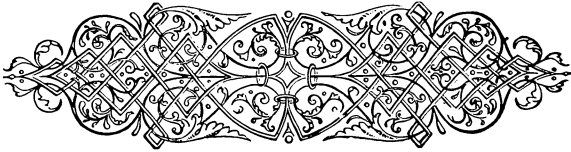
burnished to proper conformation before introducing the modeling compound.

A type of tray which I have found convenient for bicuspid and molars having compound cavities which, however, do not encroach upon the buccal surface, may be described, and is made without soldering, though in effect it is a boxed tray. Fig. 36 shows a bicuspid having a cavity through the morsal surface and involving both the mesial and distal surfaces. Such a cavity is often a trial to the operator, especially



where the tooth is long. Fig. 36, *a*, shows the pattern for cutting the tray metal, and Fig. 36, *b*, shows the boxed tray bent to form. Its application is shown in Fig. 36, *c*, where it is seen that the sides of the box cover both approximal surfaces and the lingual, the buccal wall of the tooth showing clear. In this, as in all other cases, any excess of modeling compound which might interfere with the withdrawal of the impression should be trimmed away *after* chilling, but *before* removal.

The possibilities with trays of this character are limited only by the ingenuity of the operator, and with a little thought and effort results will be obtained which, to the inexperienced, might seem almost impossible.







## **Occipital and Cervical Anchorage.**

By CARL B. CASE, D.D.S., Milwaukee, Wis.

*Read before the American Society of Orthodontists, Chicago, July, 1912.*

Application of power from a base of anchorage other than the teeth has probably received less attention in proportion to its practical value than any other method of applying or sustaining power for orthodontic purposes.

Though it is impossible to go into this subject exhaustively in the short time allotted to me, I shall endeavor to place it before you in such manner that the applicability of the occipital force with its variations may be readily comprehended.

Years ago it was determined that the available anchorage teeth did not furnish, in all cases, a sufficiently sound and stationary pier, however firmly they were attached together, from which to apply either a positive screw force or an elastic tension for the distal movement of anterior teeth. In natural sequence it followed that a base of anchorage other than the usual anchorage teeth would be extremely desirable.

This idea ultimately resolved itself into the so-called "Headgear," a skeleton cap designed to be worn over the occiput from which a retractive force could be applied to the upper anterior teeth through the medium of an external bow and elastic ribbons, thus relieving the customary anchorage teeth of the reactionary strain and utilizing them principally to maintain the movement secured by the external elastic force.



# ORTHODONTIA

Although the various devices evolved for applying the occipital force operate on the same general principle, the essayist, from long acquaintance and practical knowledge of its working capacity, desires to recommend one particular apparatus for various important reasons which will be readily appreciated (Fig. 1).

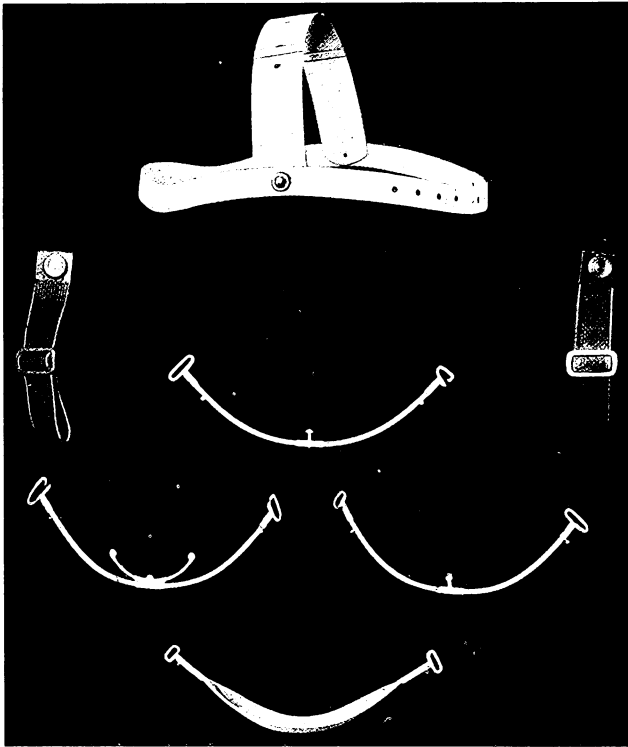


Fig. 1.

The cap is constructed entirely of thin, flexible metal ribbons, which cause it to fit the head closely. The circlet and top band are riveted together by the device known as a "glove fastener," which permits the cap to be folded and provides means for the ready attachment of the elastic ribbons. It is easily adjusted to any size and shape of head over which it evenly distributes the reactive pressure. These are but minor points which are brought out in describing the apparatus.

The principal reason why this device is most efficient is because of the several interchangeable attachments which permit of the application



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of force at various points upon the teeth and which, consequently, render the apparatus peculiarly applicable in a variety of classes of malocclusion and malposition.

An important feature which is common to all of the bows as well as the chin retractor is the swivel loop for the attachment of the elastic ribbons. This is so constructed that it lies flat against the cheek and affords a quick means of attaching or detaching the elastics.

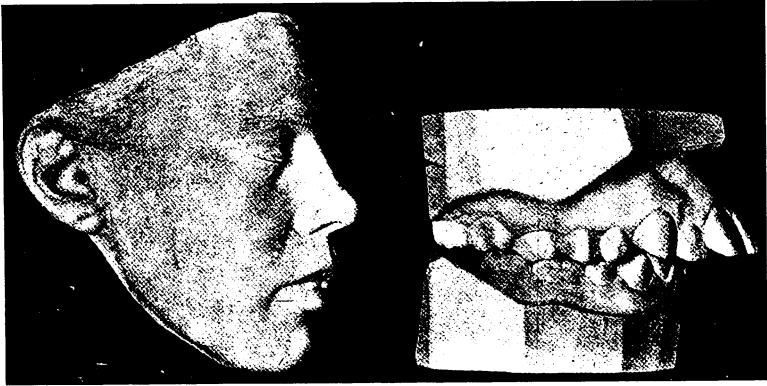


Fig. 2.

The "screw post bow," which exerts a retractive power upon the incisors, is held in place on the alignment arch by an open-tube attachment at the end of the screw post. The latter is capable of being adjusted to increase or decrease the distance between the bow and the teeth.

The "buccal adjustable bow" is provided with arms which attach to the alignment arch on each side. The arms are secured by a set-screw and can be lengthened or shortened as desired.

The great advantage derived from the "buccal adjustable bow" is that power can be applied to the cuspids, to the posterior teeth separately or combined, or to the entire arch, and probably to the lower teeth as well as the upper.

The "lower bow" was devised for retruding and extruding the lower anterior teeth in cases which might require such treatment and has been found very satisfactory.

The "chin retractor" is constructed of a thin pliable wire mesh which allows it to be easily shaped by hand. When in use its flexibility causes the retractor to adapt itself to the chin against which it rests.



## ORTHODONTIA

In conjunction with these power-transferring attachments, the apparatus offers a very serviceable method of applying an advantageous regulative force.

Consider first the type of dental and facial deformity illustrated by Fig. 2, which the system favored by the essayist is pleased to classify as the "full upper protrusion" and which at first glance is suggestive of the occipital force.

### **Full Upper Protrusion.**

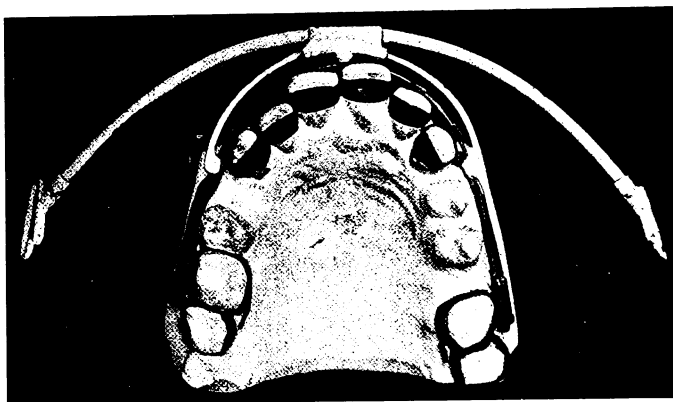


Fig. 3.

There is but slight doubt that the difference in opinion, which obtains among orthodontists relative to the diagnosis and methods of treatment of all cases of similar character, will be maintained for years.

The use of the intermaxillary force is favored by many. Extraction of teeth is advocated by an equal number. Since the views of each faction are recognized and upheld by a large following these points need not enter into this discussion as the subject in hand deals solely with the "external anchorage" and the possibility of attaining superlative results by its consistent use.

Although the occipital anchorage may be employed to great advantage, as will be shown, it is not to be inferred that the apparatus is to be utilized to move the entire upper dental arch distally to a normal general relationship with the lower. Such a movement, even were it possible, would be decidedly impractical.

It being considered impossible to maintain the full complement of upper teeth and physiologically move them all distally to their proper cranial position, the first upper right bicuspid was extracted—one of the



left molars having unfortunately been lost some years previously—thus providing a sufficient space on either side to retract the anterior teeth the required distance to establish a good interdigitating occlusion, and consequently reduce the facial deformity which was caused by the anterior position of the upper teeth alone.

It is needless to enter into a description of the appliances employed for this purpose. Suffice it to say that a retractive screw force was first applied to the cuspids. Although the stationary anchorage fixtures

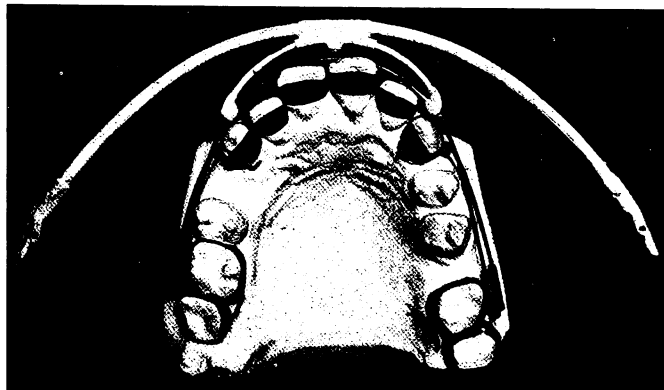


Fig. 4.

firmly incorporated three teeth each, the apparatus being similar to Fig. 3, without incisor bands or the alignment arch, it was discovered that the anchorage teeth on each side were gradually being drawn forward while little impression was made on the cuspids.

The retractive force was immediately discontinued and pressure brought to bear directly upon the anchorage teeth through the medium of the occipital anchorage and the buccal adjustable bow with the result that in a consistent length of time the molars and bicuspid were caused to assume their original position.

It is extremely doubtful if this result could have been attained through the use of the screw post bow which transfers the pressure to the anterior teeth and which is apparently the only method of applying the occipital force to the teeth with other devices.

It will be seen that the adjustable arms of the bow, which are capable of being lengthened or shortened at will, slide at their ends upon the alignment arch against short sections of tube, or against a wire span on each side, thus bringing all of the retractive force to bear directly upon the anchorage teeth.





Fig. 5.

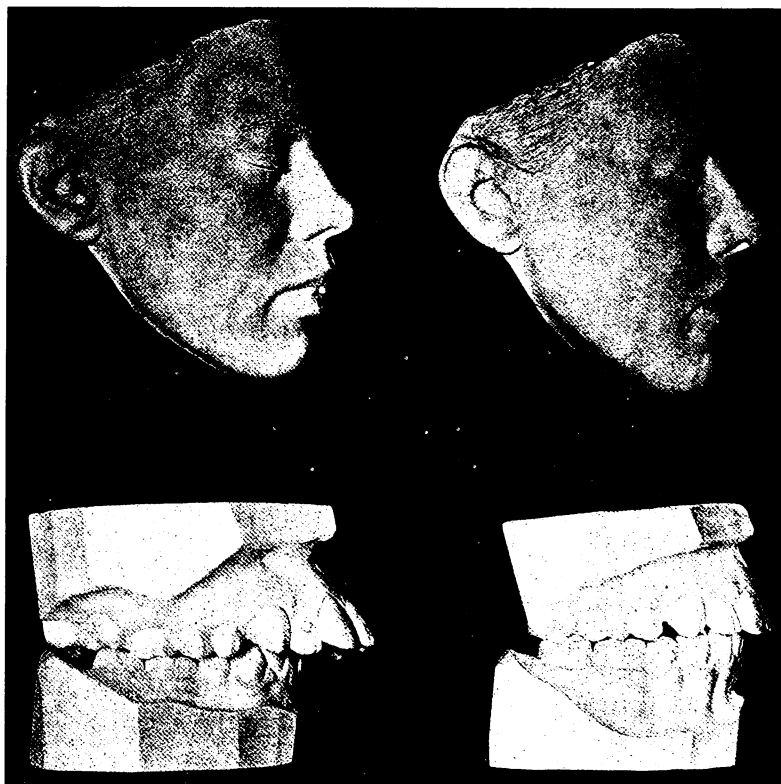


Fig. 6.



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The apparatus shown in Fig. 4 could have been primarily employed to advantage in two ways, either to reinforce the anchorages as the cuspids were being drawn back by screw and elastic force, or to transfer the pressure exerted by the elastic ribbons directly to the cuspids, as was finally done.

The screw post bow, as shown in Fig. 5, was ultimately substituted for the buccal adjustable bow for the purpose of retruding and intruding the incisors, although the use of the buccal bow might have been continued with good results by further shortening the arms so that their ends rested upon the alignment arch on each side between the central and lateral incisors.

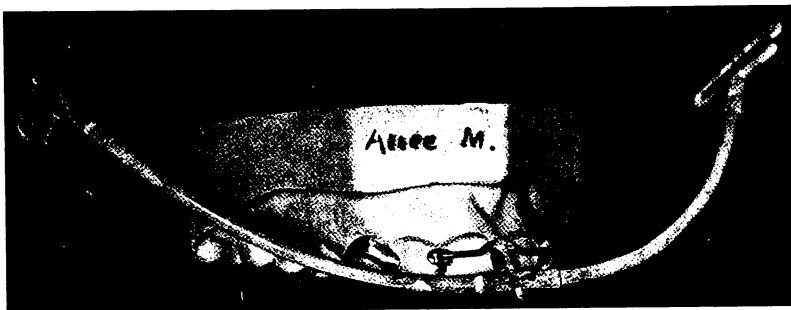


Fig. 7.

From the time when the occipital force was first employed the anchorage teeth were used solely for the purpose of maintaining the movement secured and not as a base from which to apply force.

The final result, illustrated in Fig. 6, can be attributed alone to the consistent use and efficient action of the occipital anchorage and force. This apparatus, in connection with the post bow, was further utilized in the manner shown by Fig. 7, to reinforce the retaining fixture and assure permanency of the result.

The retrusion and intrusion of the incisors may even be continued if desirable by increasing the strain of the elastic ribbons.

### **Open Bite.**

The class of dental deformity styled "Open Bite," Fig. 8, which is frequently complicated with a bimaxillary protrusion, requiring the extraction of upper and lower bicuspid, can be judiciously treated with the occipital force and its variations with greater chances of success than if the usual treatment with screw and elastic force alone is depended on.



Although the direction of pull exerted by the occipital force in conjunction with the lower bow, as shown in Fig. 9, is well adapted to the retrusion and extrusion of the lower anterior teeth and has been employed advantageously for these purposes with the lower retaining fixture, such a force would have little beneficial effect in the movement of the upper teeth as the upward pull would undoubtedly defeat the object of extruding them.

It was perceived that a base of anchorage from which a retractive

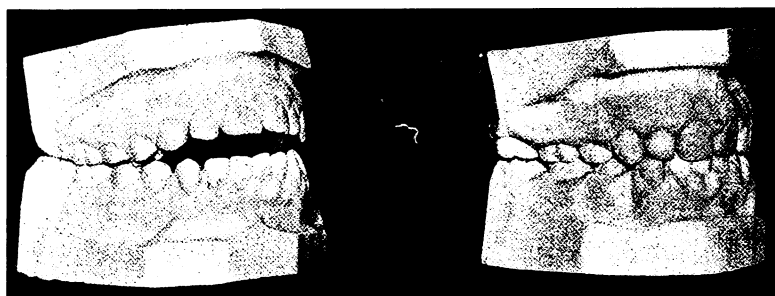


Fig. 8.

force could be applied more nearly parallel with the line of occlusion would be of great advantage.

Several ineffectual efforts have been made to reduce the slant or to "horizontalize" the line of occipital force. The failures have undoubtedly resulted from holding to the occipital cap as the anchorage base.

Each make of occipital apparatus has a variation which permits of two elastic attachments on each side, but if any change is effected in the direction of the line of pull on that account it is so slight that no practical advantage is gained.

In December, 1910, the writer considered employing the neck or base of the skull to sustain at least a part of the reactive force and devised the apparatus shown in Fig. 10.

This consisted of a metal plate which fitted the back of the neck quite perfectly. Its object was to sustain the rear bow, which attached to the cap at its forward ends and afforded an anchorage for the elastic ribbons.

Although this device provided the means of applying an effective force in the desired direction, it was ultimately discarded on account of the probable discomfort caused the patient.



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### **Cervico-Vertebral Anchorage.**

The experiment, however, served its purpose in proving that the neck could be used as a base of anchorage, probably unassisted, to support a horizontal line of force with the result that the collar, which may be appropriately termed the cervical or cervico-vertebral an-

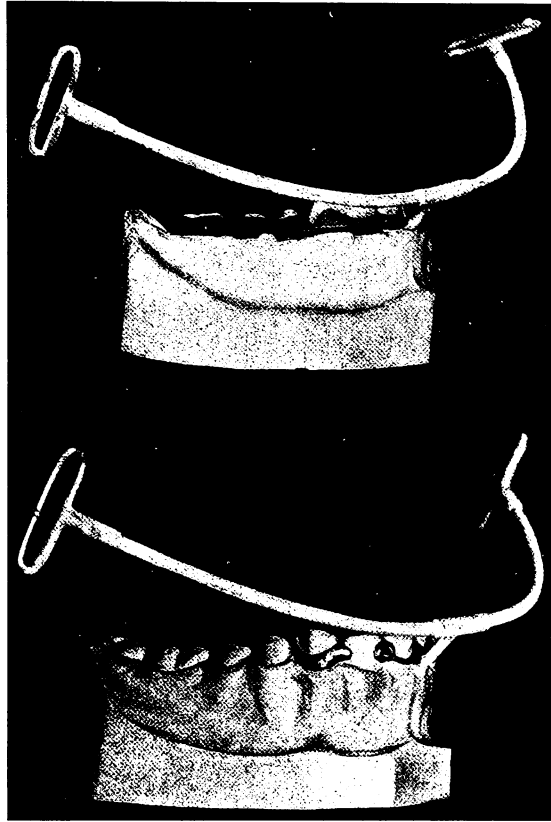


Fig. 9.

chorage, was constructed of silk covered canvas and provided with a series of hooks and eyes to allow its adjustment to any size of neck. (Fig. 11.) To the back of the collar is fastened a broad metal distribution plate of proper shape to fit the neck closely. As its name implies, the plate distributes the reactive force over the back of the neck so liberally that practically no irritation or discomfort is caused.

The rear bow, which affords an anchorage for the elastic ribbons, is attached to the distribution plate in such manner that it is capable of



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a slight lateral movement. This equalizes the elastic pull on each side, without causing the collar to change its position when the head is turned.

It is obvious that this apparatus should undoubtedly prove efficient in all cases of dental malposition, where a horizontal direction of pull

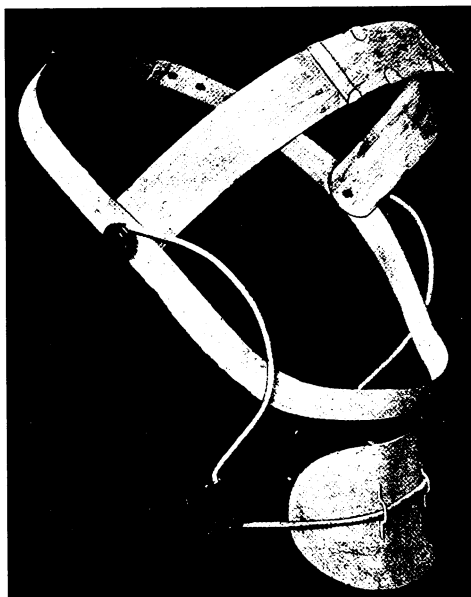


Fig. 10.

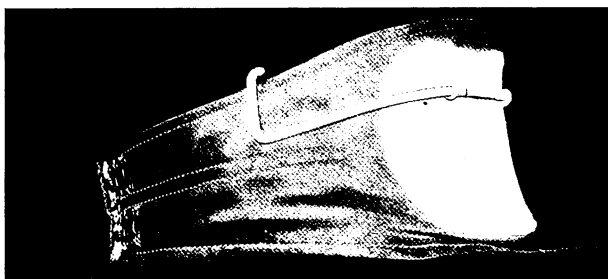


Fig. 11.

sustained by an anchorage remote from the teeth is considered an advantage.

Although a practical demonstration of applying force to the lower teeth through the medium of the cervical anchorage has not yet as yet



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been attempted, there is probably no question that it can be done advantageously.

The greatest difficulty to obviate will be the form of the adjustable bow which must be so shaped that it can be readily worn without discomfort.

### **Chin Retractor.**

The chin retractor, which has supposedly contributed largely to the utility of the occipital anchorage, has but little practical value.



Fig. 12.

At the age when the chin retractor might be employed to advantage to retard the development of the mandible or to maintain it in a posterior position, the bones of the head and face are not fully developed, and there is no way of determining what results Nature will effect in them. The most praiseworthy efforts with the chin retractor at this age might result unfavorably.

At the age when it can be safely applied, its capacity for accomplishing the object for which it was devised is so slight as to render it almost worthless.

The full value of the cervical anchorage cannot be estimated at this time. The principle of applying a regulative power to the teeth





from an external anchorage has never before been attempted in this manner so far as it has been possible to discover.

If experimental investigation proves the principle to be sound, there is assuredly no question that the efficacy and applicability of the external anchorage will be greatly increased.

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### Discussion of Dr. Case's Paper.

**Dr. Frank M. Casto** I did not know that I had been selected to open the discussion on this paper. I have not had very much experience with occipital anchorage or cervical anchorage. As I understand, Dr. Case has presented the technic of occipital anchorage to be used in such cases as the operator may select, or in such cases as he may decide it would be indicated. I think the appliance he has presented would be quite efficient, and I believe that in any case where it is indicated, we might not know of anything better, and I believe it is a good thing to present here because undoubtedly there are certain conditions where it may help some. But Dr. Case excluded a discussion of the particular treatment in these cases, and there is not very much left except the technic of the appliance. I have used occipital anchorage as a supplementary anchorage in Class 3, and in some cases of Class 2, Division 1, to overcome more or less instability from the continued use of the intermaxillary force.

**Dr. William E. Walker,**  
**New Orleans.** I believe, in cases where it is necessary and desirable to use cervical anchorage, it will be found efficient and comfortable in the form Dr. Case has advised, judging from the experience I had in one case in which I did not use such a nice device, but a piece of cigar board with holes in it and a string. I used it in 1889. It was successful in drawing back the six anterior teeth.

**Dr. C. E. Grisamore,**  
**Chicago.** I have used these appliances that have been spoken of by Dr. Case many times with good results in two classes of cases. In one class, where you want supplementary anchorage, where you use intermaxillary anchorage, and the upper teeth are not moving just fast enough, if you put on this anchorage it gives satisfactory results. The other cases in which I have used them with good advantage have been in those of open bite malocclusion, and the tendency of the anchorage is to raise the lower teeth and elongate them, with a tendency to shorten the upper back teeth. I have never tried the cervical appliance, but I can see a place for it, since the tendency of the occipital force is to elongate the lower teeth and depress the upper. In cases where you want supple-





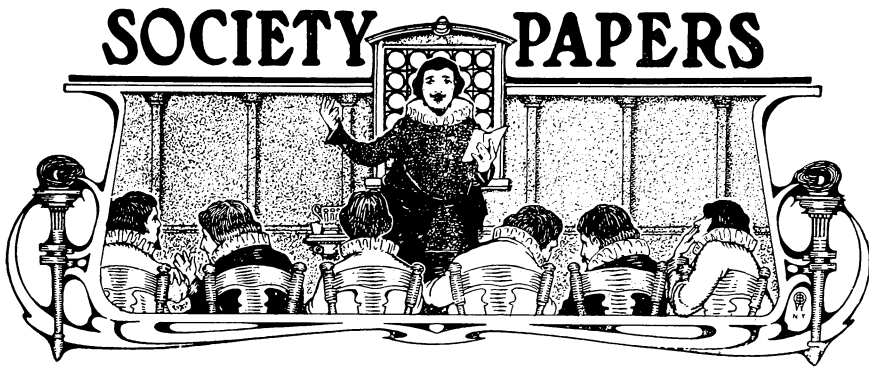
## ITEMS OF INTEREST

mentary anchorage and do not wish this change in the teeth, I can see where cervical force can be used to good advantage.

There is very little to say in closing the discussion. I am one of those who believe in having a number of devices that I can use in certain cases, although a large number of the appliances which we have on hand were decried at Cleveland a year ago. But the work we are doing is serious enough to have appliances which can be adapted to the individual case, and where stereotyped appliances cannot be used. We cannot have too many appliances. Therefore, in my paper I have introduced another method of applying force which may possibly obtain results which cannot be had as easily by any other method.







## **Restoration of Occlusion by the Casting Process.**

By DR. J. LOWE YOUNG, New York City.

*Read before the Second District Dental Society, March, 1913.*

Considerable thought has been given to selecting a suitable title for this paper, as it is deemed advisable to discuss only what is included in the title. Consequently, we are confronted with two main questions: first, a careful study of the teeth when in occlusion; and, second, cast restorations, whether they be for inlays, crowns or bridges.

It will be helpful to use as many pictures as possible in discussing these questions with you, so that by means of the eye we can more clearly convey our thoughts on this subject.

Previous to the writings of Dr. Edward H. Angle on the correction of malocclusion, the necessity of restoring normal occlusion as a result of orthodontic treatment was not recognized by the dental profession. Normal occlusion, then, became the basis of the classification and diagnosis of all cases and immediately placed orthodontia upon a scientific foundation, which fact mainly has enabled it to advance with such rapid strides during the last ten years.

For the orthodontist to correct malocclusion, he must of necessity have a clear and definite understanding of this ideal condition which he is attempting to restore. Thus it is that normal occlusion is the one supreme picture which the orthodontist has in mind, the beginning and the end of his anticipation of treatment, the ideal which governs the daily progress of correction of malocclusion, the standard in occlusal relations which above all it is desirable to obtain. Fig. 1 is familiar to every orthodontist and should be to every practitioner of dentistry. Fig. 2 is made from the lingual view of the natural teeth in occlusion and should also be most carefully studied and understood by all.



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### Importance of a Knowledge of Occlusion.

Examined analytically, this condition of normal occlusion exhibits first, normal structure of the teeth, collectively and individually; and second, normal functions of the teeth, collectively and individually.

Normal structure of the teeth will imply the perfection of form of the individual teeth and of each dental arch. Normal function will imply normal occlusal relations of the inclined planes of the cusps of the individual teeth.

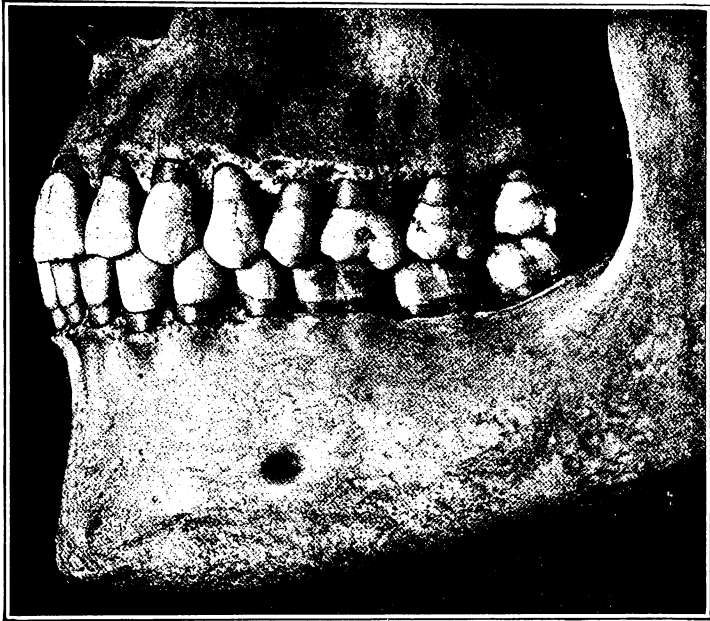


Fig. 1.

With this conception of normal occlusion it will be apparent that the loss of one tooth, or of even one cusp of one tooth, or, to be more exact, the loss of any portion of the mesio-distal diameter, will to just that degree destroy both normal structure and normal function. It is also apparent to those who have seriously studied this question that it is of equal importance to properly restore the mesio-distal diameter of the *deciduous* molars where fillings have been inserted on their approximal surfaces.

Did it ever occur to you that the orthodontist often works for years to build up this normal occlusion, only to have it pulled down in a day by the ruthless extraction of a single tooth, or by the lack of restoration of cusp contour or approximal contact in making fillings or inlays?



It would seem, therefore, that the dentist must share the responsibility of the orthodontist in emphasizing the importance of normal occlusion by preserving it at all times, and at least by not destroying it.

Hence, if the general practitioner is to properly restore any part of the dental apparatus, he, like the orthodontist, must have in his mind's eye the forms, surfaces and positions of the dental organs when normal.

The value of approximal contact, the proper occlusion of each cusp, the size of each fossa, the shape of each sulcus, and the direction and

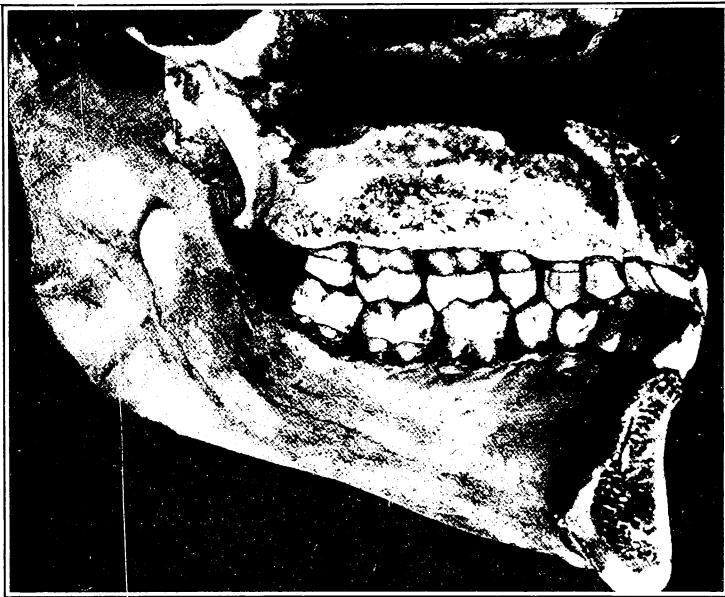


Fig. 2.

depth of each groove, should be known to him who aspires to restore or re-create these anatomical forms.

In this brief paper it is my purpose to call your attention especially to the one phase of normal occlusion represented in the relation of the occluding surfaces of the teeth of one dental arch to the same surfaces of the teeth of the opposing arch.

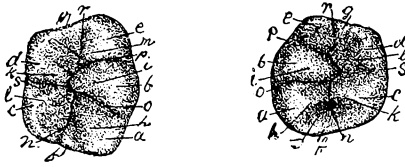
At the same time I wish to appeal to you to use the same standard of normal occlusion as a guide in your work that the orthodontist uses, so that when you examine a set of plaster models made from accurate plaster impressions you will not only consider the teeth of one arch in their mesio-distal and bucco-lingual relation to those of the opposing arch, but that you will note the position of each cusp of each tooth and its



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relation to the cusps of the teeth of the opposing arch; for, when carefully considered and thoroughly understood, their proper reproduction becomes of the utmost importance to the general practitioner and the prosthodontist as well as to the orthodontist.

It is my further purpose to direct your particular attention to the grooves, the pits, the ridges and the inclines found on the occluding surfaces of the teeth, and to consider the possibilities of their reproduction



Figs. 3 and 4.

in your work. These features can be best studied from the natural teeth wherever it is possible to procure a skull having all the teeth in normal occlusion.

Those of you who purpose to seriously study these organs will do well to have Dr. Black's "Dental Anatomy" along with your anatomical specimens. It is really wonderful how carefully each anatomical landmark is defined by this writer. To attempt to go into detail as he has done in describing the occlusal surface of each tooth would make this paper too long, but it is deemed advisable to quote from his Fourth Edition what he says of this surface of the lower first molar. This tooth has been chosen because of its great importance to the orthodontist in his work; and also from the fact that so many of these teeth require large restorations on their occlusal surfaces previous to the eruption of the premolars and second molars.

### **Black's Description of a Lower First Molar.**

"98. The *occlusal surface* has five developmental grooves (Figs. 3 and 4), the mesial, buccal, disto-buccal, lingual and distal—which divide it into five developmental parts, or *lobes*. These are the mesio-buccal (*a*), disto-buccal (*b*), mesio-lingual (*c*), disto-lingual (*d*), and distal (*e*) lobes; each bearing a cusp of the same name. The *mesial groove* (*n*) runs from the central fossa over the mesial marginal ridge to the mesial surface. On the mesial marginal ridge it is



usually a fine line which is soon obliterated by wear. Occasionally this is divided into two branches, with a small tubercle on the mesial marginal ridge between them (Fig. 3, *f*). In many examples there is a supplemental groove which rises from the mesial groove at about the center of its length and runs toward the mesio-buccal angle. This is the mesio-buccal triangular groove (Fig. 4, *t*). It divides the mesial marginal ridge from the triangular ridge of the mesio-buccal cusp. More rarely there is also a similar groove running toward the mesio-lingual cusp. When these are deep they form a mesial supplemental fossa (Fig. 4, *t*). The *buccal groove* (*o*) runs in a deep sulcus from the central pit to and over the buccal marginal ridge to the buccal surface, and divides the mesio-buccal from the disto-buccal cusp. The *disto-buccal groove* (*p*) also runs bucco-distally from the central pit over the buccal ridge, more or less near the distal angle, as the distal cusp is large or small. It divides the disto-buccal lobe from the distal. The *lingual groove* (*s*) runs from the central pit in a deep sulcus to and over the lingual marginal ridge onto the lingual surface and divides the two lingual lobes. The *distal groove* (*r*) runs distally over the distal marginal ridge and divides the disto-lingual lobe from the distal. Frequently this groove can be traced some distance toward the gingival line on the distal surface. The mesial and distal grooves form a line traversing the whole extent of the occlusal surface, from mesial to distal, in the center of which a V-shaped deflection is formed with its point to the lingual, the base receiving the point of the triangular ridge (*i*) of the disto-buccal cusp.

"99. In most examples the *central fossa* occupies all the occlusal surface within the circle of the summit of the marginal ridges, though occasionally one or more supplemental fossæ are divided from it by high triangular ridges running down from the cusps (Fig. 4, *h*, *k*). The surface of the fossæ is made irregular in most of these teeth by deep sulci on the lines of the grooves, separating the cusps and triangular ridges.

"100. The occlusal surface of the lower first molar has *five cusps*, one on each of the *five lobes*, or three on the buccal marginal and two on the lingual marginal ridge.\* These cusps are formed by the grooves previously described, which pass over the ridges in depressions of variable depth, thus subdividing the crests of the ridges into obtuse elevations. Usually, these are not so high and prominent as the cusps of the upper molars. The *mesio-buccal* (Figs. 3 and 4, *a*) is the largest and strongest of the buccal cusps and occupies rather more than one-third of the buccal marginal ridge. From its crest a triangular ridge (*h*) runs down centrally to the junction of the mesial and buccal grooves, and is divided from a similar triangular ridge from the mesio-lingual cusp by the mesial groove. When these two ridges are high they form, in conjunction with triangular grooves between them and the mesio-marginal ridge, a mesial supplemental fossa. The *disto-buccal cusp* (*b*) is of less extent from mesial to distal, but has a longer triangular ridge, though not so high,

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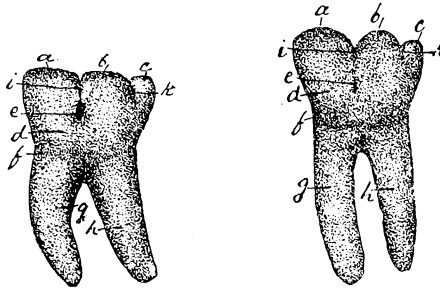
\*In some rare cases lower first molars have but four cusps, and then the tooth is like the lower second molar.



## ITEMS OF INTEREST

which ends in the point of the V-shaped deflection of the mesial and distal grooves, or at their junction.\*

"101. The *lingual cusps* (*c, d*) are about equal in size and height (perhaps the mesial is a little the higher on the average). They have



Figs. 5 and 6.

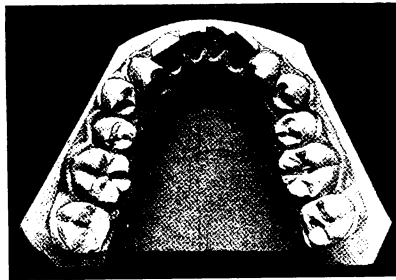


Fig. 7.

strong triangular ridges (*k, l*) which terminate in the angles formed by the junction of the lingual groove, with the mesial and distal grooves in the central pit.

"102. The *distal cusp* (*e*) occupies the distal portion of the buccal ridge, and forms the disto-buccal angle of the occlusal surface. It is the distinguishing mark of the lower first molar, being but very rarely absent in that tooth, and never present in the lower second molar.† It is the smallest of the five cusps, and varies most in its relative size. In some examples it is almost or quite as large as the disto-buccal cusp. In others, especially in small and poorly developed teeth, it may be reduced to a mere tubercle, occupying the buccal portion of the distal marginal ridge and the immediate disto-buccal angle. The central incline of this cusp is commonly nearly flat, but occasionally has a rounded crest. It ends in a point at the junction of the distal and disto-buccal grooves.

\*Figs. 5 and 6. Buccal view of two lower first molars. Note the pronounced difference in the depths of the cusps: also relative sizes of cusps.

†Fig. 7 is a marked variation from the normal. Please note three distinct lingual cusps and two buccal cusps.



"In this tooth there is often a deep pit at the junction of the mesial, distal, and lingual grooves. Less frequently there is also a pit at the junction of the mesial and buccal grooves, and at the junction of the distal and disto-buccal grooves. The grooves are often *fissured* for a short distance from the pits, especially in the deeply sulcate lingual grooves. In some very poorly developed teeth fissures may be found in any part of the grooves."

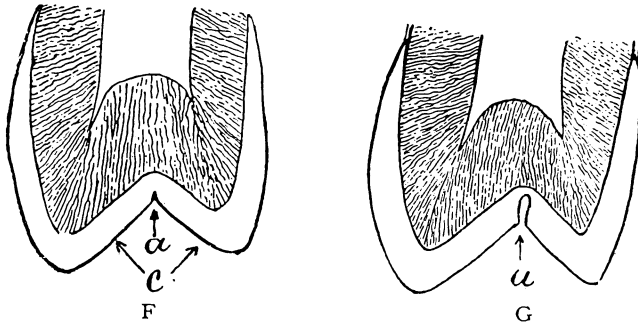


Fig. 8.

Fig. 8 shows longitudinal sections of bicuspid. At *F* you will observe the groove as it should be when development is normal; at *G* you will observe a fissure, which is a defect in development.

When we consider how much more we get out of this quotation with the pictures before us on the screen, it must be apparent to everyone that in studying this work of dental anatomy we must do as Dr. Black has advised and have several specimens of each tooth before us as we read the text. Great benefit may also be derived by careful consideration of plaster models, made from accurate plaster impressions, such as the orthodontist is in the habit of making. Fig. 9 shows the occlusal view of such an upper cast. Fig. 10 shows the occlusal view of such a lower cast. By means of such models, the relation of the cusps, fossæ, sulci and ridges of the occluding surfaces of the teeth of one arch to the same surfaces of the teeth of the opposing arch can be studied from the buccal, lingual and occlusal views.

My object, therefore, in bringing this phase of occlusion to your attention has a more definite purpose than the subject as it is related to the work of the orthodontist, and yet it is of great importance to him because it bears such a close relation to his most difficult problem, namely,



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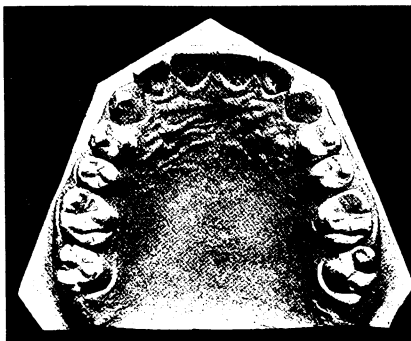


Fig. 9.



Fig. 10.

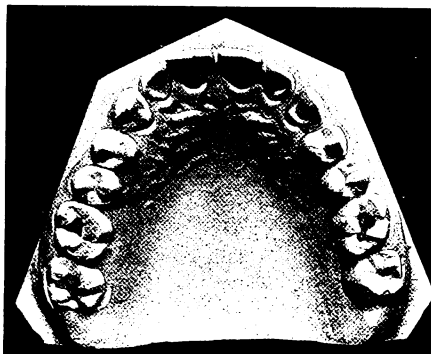


Fig. 11.

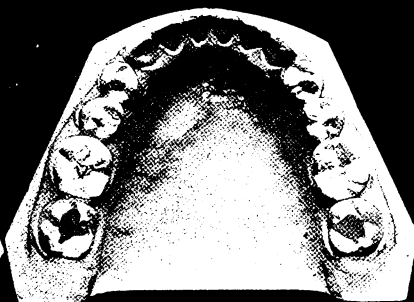


Fig. 12.



Fig. 13.



Fig. 14.



the retention of teeth that have been in malocclusion. Frequently the result of several years of most painstaking efforts of the orthodontist is thwarted by improper fillings and inlays. It therefore appears that if in any way we can help each other in maintaining normal occlusion we should do so by trying to work in harmony.



Fig. 15.

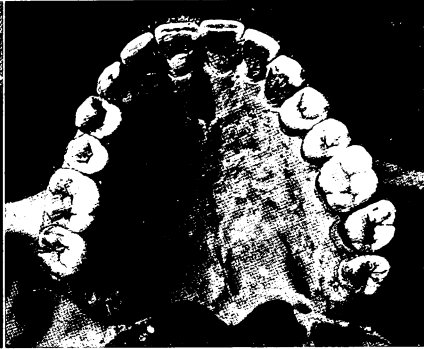


Fig. 16.



Fig. 17.

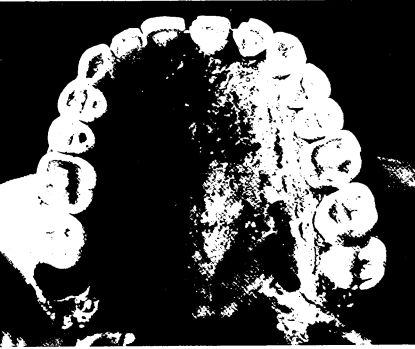


Fig. 18.

**Old Methods  
of Filling  
Unsatisfactory.**

Several years previous to my taking up orthodontia as a specialty, which was several years previous to Dr. Taggart's giving to the profession the casting process, a man came to my office to demonstrate the use of Watt's crystal gold. In our discussion of gold fillings generally he spoke several times of beautiful gold restorations, and I finally said to him: "Doctor, I have never seen a beautiful gold restoration." He looked at me and said: "What do you mean?" I answered him: "Just what I say." He said: "I wish you



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would explain yourself." So I said to him: "Are you willing to admit that for a gold restoration to be beautiful it must reproduce the lost portion of the teeth?" To this he agreed. Then I said: "In the anterior teeth the difference in color renders it improper to term the best gold fillings beautiful." "But," he said, "what about the back teeth that do not show, and where the esthetic question does not enter?" My answer was that I had never seen a gold restoration on the occlusal surface of a

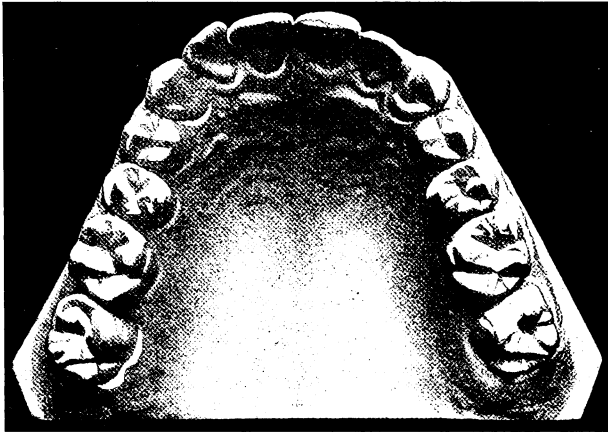


Fig. 19.

molar or a bicuspid that even approached the original shape of the tooth, nor did I know how to make one. Since then I have had the opportunity to see gold restorations from the hands of many of our best operators and I am of the opinion still that there are no beautiful gold fillings. Figs. 11, 12, 13 and 14 show lack of restoration of occlusal surfaces with gold fillings.

The deficiency of these fillings and inlays to which I refer is due occasionally to the failure of the operator to reproduce a cusp, but more often to his failure to reproduce the fossæ, sulci, pits, grooves, ridges and the mesio-distal diameter as they are found in the natural teeth.

That it is Nature's plan to have cusps of a proper length, and fossæ of a proper depth, and sulci of a certain form, and ridges of a definite shape, in order to make the dental apparatus efficient, a careful study of these occlusal surfaces in their natural state will show conclusive proof. Figs. 15, 16, 17 and 18, inclusive, are made from skulls, showing, first, the buccal view of the teeth occluded and, second, the occlusal view of



the upper teeth. Please note when examining the buccal view how much the teeth have been worn, and also how clearly the grooves are defined on the occlusal surfaces of these same teeth. Figs. 19, 20, 21 and 22, inclusive, show the occlusal view of teeth taken from casts that were made from accurate plaster impressions, and in the absence of models may be used by dentists as copies from which to carve inlays.

The surgeon, to be successful, must know his anatomy. The late

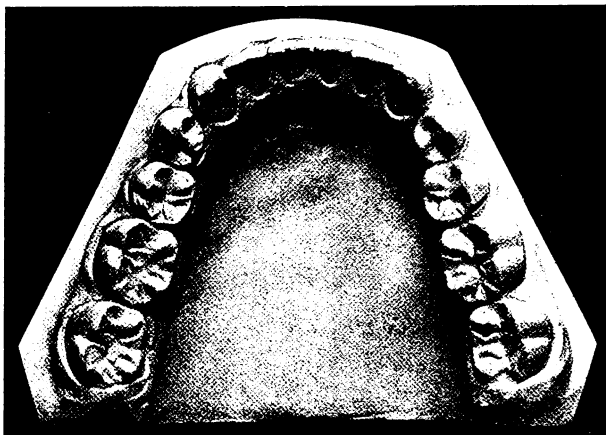


Fig. 20.

J. E. Garretson, the father of oral surgery, was often heard to remark to his students that before attempting the simplest surgical operation, unless in cases of extreme emergency, he always carefully read the anatomy of the part to be operated on before entering the operating room. Would it not be well for every man who attempts to make a cast-gold inlay to carefully read and study what Dr. Black says in description of the occlusal surface of the relative tooth?

Here let us note that the bottoms of the grooves, when normal, are never reached by the cusps of the teeth of the opposing jaw. (Fig. 23, from "Black's Anatomy," paragraph 137.) In this respect the old-fashioned millstones were patterned after the grinding surfaces of the teeth, and whenever the miller allowed these stones to become dull, so that the grooves were very much reduced in depth, though not entirely obliterated, the grist was invariably spoiled. In like manner, whenever the dentist fails to reproduce the grooves, pits and ridges in restoring lost portions of the occluding surfaces of the dental organs, does he interfere with their efficiency for masticating food.



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It is not the intention to give you the impression that this question applies only to teeth in normal occlusion, for if such were the case it would not be worth while imposing upon your time with such a paper. But, in order that you should be able to adapt your restorations to the best advantage in maloccluded and mutilated cases, it is of the utmost importance that you should first thoroughly understand normal occlusion. And if you find it exacting to reproduce the occlusal surfaces of the

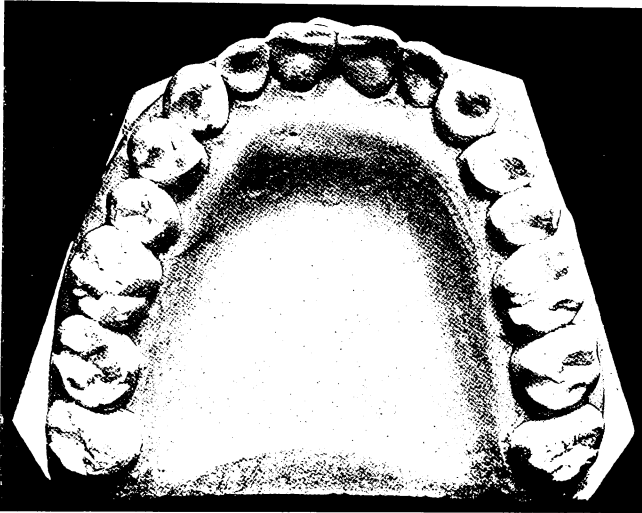


Fig. 21.

teeth in your restorations where they are in normal occlusion, I am sure it will be a greater tax for you to make proper restorations in the mal-occluded and mutilated cases.

### **Taggart's Teaching Not Followed.**

I am aware that this paper is somewhat of a criticism on your efforts, and withal it is my desire to be fair in this matter. It is a little over five years since Dr. Wm. H. Taggart gave to the profession his wonderful technique in this work, and it is not to be wondered at that, in adapting yourselves to this new method of practice and solving all the intricate problems which you have undoubtedly encountered, you were quite content when the occlusal surfaces of your inlays were equal to your best efforts when gold foil was used in making these restorations.

I wish to call your attention, however, to the fact that the specimen inlays which Dr. Taggart passed around at the November, 1907, meeting.



showed beautiful cusp restoration and normal depth of fossæ. A porcelain-faced gold-shell crown that I have recently seen, made by him many years ago, causes me to infer that it was largely due to his desire to reproduce the normal shape of the occlusal surfaces of the teeth that he was encouraged to persevere to the point where he developed this wonderful technique which he has given to the profession.

Now, with this idea of the normal occlusal surface in mind, let us,

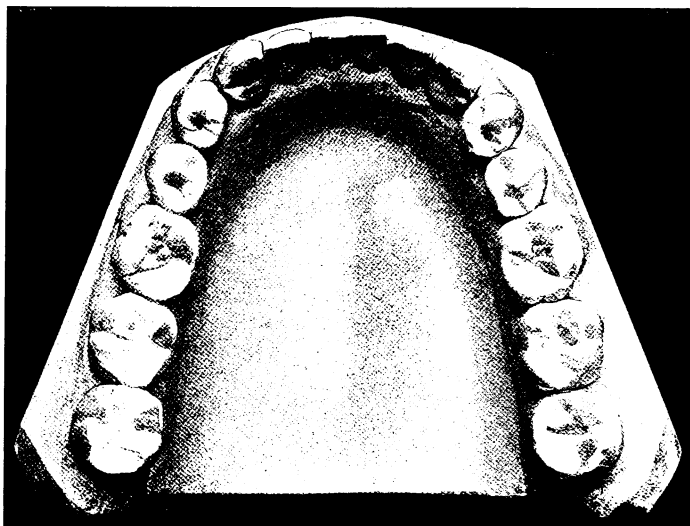


Fig 22.

by way of contrast, consider the meager, inefficient manner in which the average practitioner attempts to reproduce them, and see how far short he falls from the ideal in this respect.

#### **A Case from Practice.**

A case that has been under my observation for a number of years for orthodontic work, and of which I have several sets of models, impressed upon me the probable mutual benefit of discussing this subject with you. Fig. 24 is made from the occlusal view of the upper cast of this case before any inlays were inserted. Fig. 25 is made from the occlusal view of the upper cast of this case after inlays were inserted. Fig. 26 is made from the occlusal view of the lower cast of this case before any inlays were inserted. Fig. 27 is made from the occlusal view of the lower cast of this case after inlays were inserted.

By studying the models of this case you will see by examining and comparing the occluding surfaces of the teeth before and after the inlays



## ITEMS OF INTEREST

were inserted how lacking are the fossæ, sulci, grooves, pits and ridges in these otherwise beautiful inlays.\* You will observe almost flat surfaces, and in many cases over contour on the occluding surfaces. In several places the cusp of a tooth in one jaw strikes too hard on the inlay in the opposing jaw. Indeed, it is a wonder that more teeth are not split where fillings and inlays are left in such a condition.

These inlays were made by as conscientious an operator as I have ever known. I am satisfied that he would have done just such work as

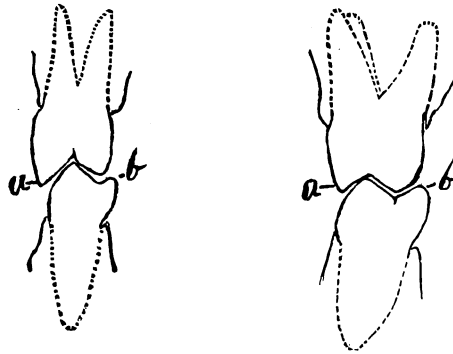


Fig. 23.

this for his own child and felt proud of it. The child complained of not being able to masticate food as well as she formerly could. I have seen plaster models of many cases, though less marked, showing these same defects.

### **Cast Gold Restoration of Tooth Form.**

The question then naturally arises how to reproduce these anatomical landmarks found on the occluding surfaces of the teeth, so as not to interfere with their efficiency, when restoring portions, or all, of their occluding surfaces.

Previous to the introduction of cast-gold inlays it seemed almost impossible, and very improbable, that this would ever be done. With the perfection of this process, it appears to be quite within the range of the careful, conscientious operator to so reproduce such anatomical landmarks in restoring any portion, or all, of the occlusal surface of a

\*The margins of all inlays used in illustrating this paper are practically perfect, the apparent imperfections being due to the retouching needed to bring out their outlines.—Ed.



tooth, that detection of these restorations will be almost impossible, when examining plaster models made from accurate plaster impressions of such teeth.

Fearing that you will accuse me of criticising your efforts without offering any solution to the problems involved, I am compelled to offer some suggestions as a remedy for these evils, and in doing so I am ven-

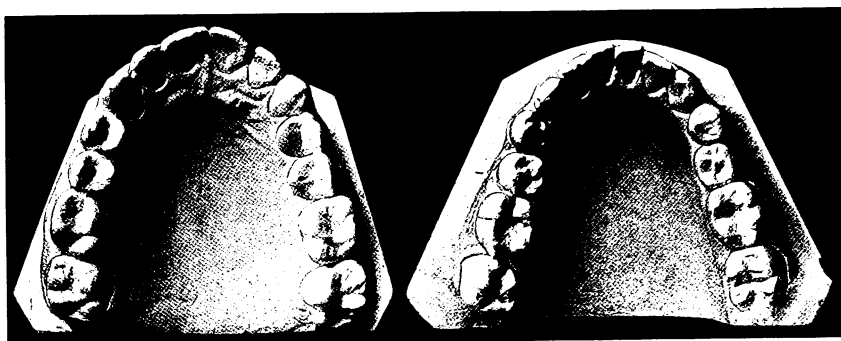


Fig. 24.

Fig. 25.

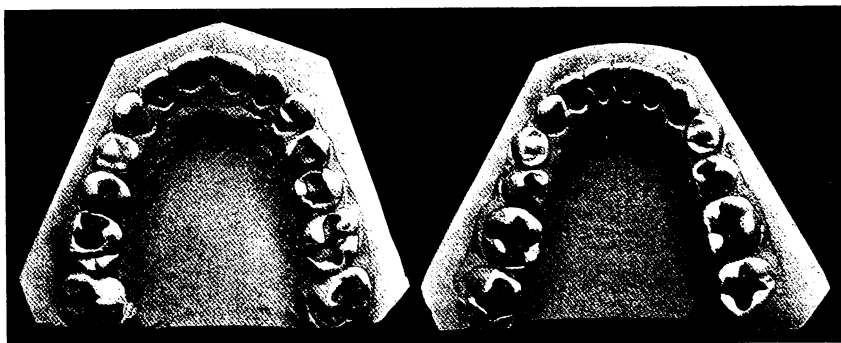


Fig. 26.

Fig. 27.

turing on new ground, as I have never had any practical experience in making cast-gold inlays.

I am not very familiar with the technique of this work, but I understand there are two methods employed, namely, the direct, and the impression method, but in either case *the occluding surface of the inlay should be made so as to accurately reproduce the natural shape of the tooth that it is to occupy, before it is cemented in place.*

By referring to the pictures shown in the quotation from Dr. Black you will observe that this necessitates the presence of cusps, fossæ,



## ITEMS OF INTEREST

grooves, pits and ridges. That it is possible to reproduce these in wax and that the same can be cast without obliterating the effects of this handiwork, the illustrations, Figs. 28 and 29, will, I think, convince the most skeptical. Fig. 28 shows a molar before a cavity was cut, and Fig. 29 is the same tooth with a cast gold restoration in place. This shows an inlay just as it was removed from the flask, and that such an inlay

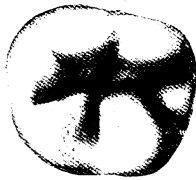


Fig. 28.

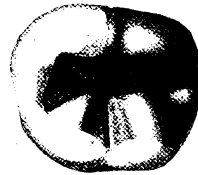


Fig. 29.



Fig. 30.



Fig. 31.

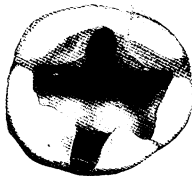


Fig. 32.

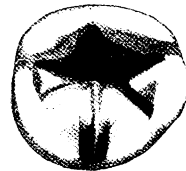


Fig. 33.

without any polishing would be much more efficient than the best gold filling that was ever inserted, to me at least, is incontrovertible. Fig. 30 shows how the occlusal surface of the upper bicuspid inlays are frequently left. Fig. 31 shows how the surface should appear. Fig. 32 shows an occluso-buccal inlay in a lower molar as they are usually finished. Fig. 33 shows how it should have been. Fig. 34 shows the occlusal view of an upper cast. Fig. 35 is a reproduction of the left first molar in cast gold. Fig. 36 shows the occlusal view of an upper first molar with a large inlay as it should be carved. Fig. 37 shows the occlusal view of an upper cast with three gold inlays. Compare that of the upper first bicuspid right side, to those in the first molars.



When such restorations can be made by one who has had no practical experience, is it not obvious that the painstaking, conscientious operator who is making many inlays every day, can do much more artistic work?

For one who has had no practical experience in this work to prepare such specimens it is obvious that the indirect method was used. The carving was done with a suitable wooden instrument, as it was so light

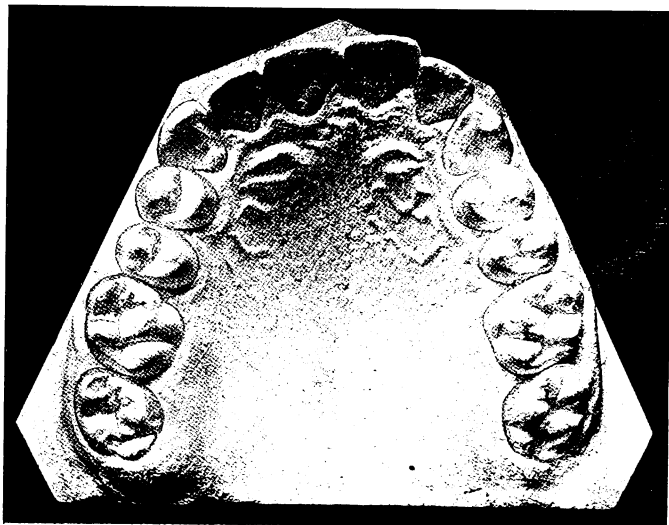


Fig. 34.



Fig. 35.

that the touch was more delicate. The sprue wire, which was very small, was placed on the under side of the wax so as not to obliterate the occlusal surface as reproduced in the wax. When cast, any imperfections on the occlusal surface, especially in the grooves and pits, were removed by means of suitable burnishers, for it must be borne in mind that if an attempt be made to smooth up the grooves and pits with burs or stones of any description the result will invariably be an inlay with a groove with a round bottom. All such inlays are a constant source of annoyance as certain kinds of food become packed into them and are difficult of removal.

One of the great difficulties experienced by the orthodontist is to retain the mesio-distal relation after it has been established. Very frequently this trouble is due to improper fillings, or inlays, on the occluding surfaces of the teeth, particularly those of the lower first molars. If these restorations can be made so as to accurately reproduce the original



## ITEMS OF INTEREST

shapes of these teeth, and thus permit the large mesio-lingual cusp of the upper first molar to properly seat itself each time the teeth are closed, do you not see what a powerful influence is exerted by the action of the inclined planes of this cusp on the inclined planes of the five cusps of the lower first molar, to prevent a return to a mesial or distal malocclu-

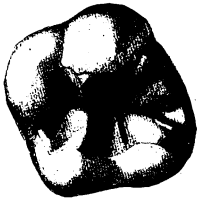


Fig. 36.

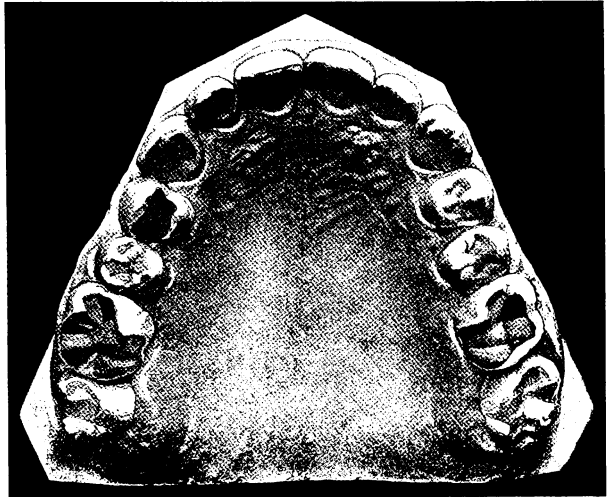


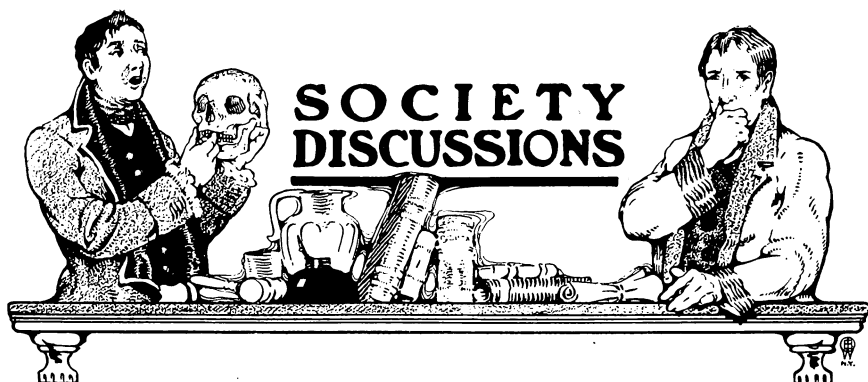
Fig. 37.

sion, and do you not see that to a proportionate degree each reproduction of the normal occlusal surface of a tooth exerts a like helpful influence? Where all restorations accurately reproduce the original anatomical landmarks, the orthodontist will experience much less difficulty in the retention of such cases.

Granting, then, that these occlusal restorations are possible, does it not appeal to you that they are necessary from the standpoint of beauty, perfection of anatomical contour, and especially of efficiency?

In presenting to you the keen appreciation of the orthodontist, of the importance of normal occlusion it is with the hope of arousing a like appreciation in the dentist, so that in all his efforts at restoration of the lost parts of the dental apparatus he will be inspired to accurately reproduce, in the minutest detail, their anatomical shape. If I have succeeded in doing this I shall feel well repaid and will look forward with keen interest to a heartier co-operation between the dentist and the orthodontist, in the attainment of normal occlusion.





### Second District Dental Society. March Meeting.

A regular meeting of the Second District Dental Society of the State of New York was held on Monday evening, March 10, 1913, at the Kings County Medical Library Building, 1313 Bedford Avenue, Brooklyn, N. Y. The president, Dr. Hyatt, occupied the chair, and called the meeting to order. The secretary read the minutes of the previous meeting, which were approved.

Dr. Foote, chairman of the Infirmary Committee, is not here, so I will make a short report for him. As you know, the Brooklyn Dental Infirmary has been taken over by the city, and is now run as one of the Board of Health clinics for school children. They have opened another clinic in Brooklyn in Herkimer Street. The work is done by dental operators paid by the Board of Health. They receive \$1,200 per year, I believe, for this work. They give three hours a day to the work, either in the morning or afternoon. These operators will be appointed by the Civil Service Board, but at present there has been no examination provided, and they have been appointed, I believe, by Dr. Lederle, the Health Commissioner, officially. He wishes to know of available applicants for these positions, and he wishes to have these recommendations come through the local dental societies, rather than through the political leaders, as they are coming at present. Therefore, if it be in order, I would move that a committee of three be appointed to receive applications from those who desire to take the examinations to do this infirmary work, and confer with the Commissioner of Health, Dr. Lederle, and make recommendations to him for that purpose.

The motion was carried.



The paper of the evening was read by Dr. J. Lowe Young, and was entitled "The Restoration of Occlusion by the Casting Process."

### Discussion of Dr. Young's Paper.

In the beginning of his address the essayist says that by writing upon normal occlusion, and by insisting that the true province of the orthodontist is not so much to improve the appearance as to rearrange the teeth into normal occlusal relations, Dr. Edward H. Angle revolutionized the art of orthodontia and brought it up to the plane of a science. There is no doubt that Angle did give orthodontia this important impetus.

Long prior to that, the great Bonwill preached about occlusion and started a current of thought, which, taken up by others and worked out to its present advanced stage, has completely changed the work of the advanced and artistic practitioner.

To-night comes J. Lowe Young, an orthodontist, to remind the operative dentist that he, too, must join the procession, and march behind the banner which bears the legend, "the fundamental principle of dentistry is the restoration of occlusion." He also tells us that William H. Taggart has made it possible, and has given us the opportunity, to absolutely restore tooth form, and masticatory function, and he warns us that we are not taking advantage of this opportunity, and that to that extent we are failing in our duty to our clientele.

#### **Influence of the Study of Occlusion.**

We have seen that the study of occlusion has produced great advance in two branches of dentistry, prosthodontia and orthodontia, and we are now to consider to what extent similar study will aid us in the filling of teeth. At this juncture I wish to call attention to the different relation which this study of occlusion must have upon the three branches of our profession.

The prosthodontist should comprehend occlusion, because he is called upon to replace lost organs by artificial substitutes. In the accomplishment of his aim he has the advantage, that he may handle the individual teeth as units. He may place them as he pleases and carve them to conform to his ideas. With these advantages, and possessed of a full knowledge of occlusion, the skilled prosthodontist should be capable of so articulating his artificial teeth that he may restore normal occlusion for any edentulous mouth. In this statement I am not belittling the difficulties of producing teeth that will be perfectly satisfactory in all ways. I am alluding solely to the problem of restoring occlusion with artificial teeth.



The orthodontist is more handicapped than is the prosthodontist. His province is to move teeth, but he cannot move them as does the prosthodontist. He cannot place them where he pleases, nor can he elevate or depress them as he pleases, to conform with his idea of occlusal plane and normal arch form, without encountering and overcoming great obstacles. Above all, he must deal with his teeth as he finds them. He cannot or should not alter the forms of the teeth by so much as a decimal part of a millimeter.

Coming now to the proposition of the essayist that the operative dentist should restore occlusion with cast gold inlays, a totally new phase of the art is met. The general practitioner, for example, cannot and indeed is not expected to correct malocclusions merely by the filling of teeth. On the other hand, the essayist very forcefully contends that he should not produce, nor reinduce malocclusion, by his faulty methods of filling, whether with inlay, foil, or plastic.

What, then, is the position of the operative dentist in relation to this subject of occlusion? One, I fear, of which he has had, nay I may say has, a very vague notion. May I expound this to some extent?

**Duty of Operative  
Dentists in Relation  
to Occlusion.**

In the first place, of course, he should thoroughly comprehend what normal occlusion is. More than that; he should comprehend what normal occlusion does; what it does for the individual fortunate enough to possess it. Complete knowledge of this cannot be gleaned from a casual glance at the pictures of occluded jaws which have been thrown on the screen, as beautiful and as instructive as they are. A full comprehension must include the useful purpose served by the overbite in the incisive region; the reason why the cuspids have pointed crowns, and the longest and stoutest roots; the reason for the shape and proportionate sizes of the bicuspid, and why the lower bicuspid differs from the upper; the reason for the shape and position of the cusps, fossæ, sulci, and ridges of the molars; the reason why the upper arch should extend beyond the lower, when in contact, both buccally and incisively. To the man who is too lazy to study out all these "why's" it may be said that at least he should admit that these curious phases of the human denture exist; that existing they must serve a good purpose; and that any deviation from the normal must proportionately lessen the usefulness of the denture.

The practitioner should thoroughly understand the why and the wherefore of normal occlusion, even though he be but rarely called upon to treat it. For while it is true that the man who fills teeth is most often dealing with some aberration from normal occlusion, a knowledge



of the normal is needed that he may intelligently deal with the abnormal. Still, it is only fair to the general practitioner to call the attention of the essayist to the fact, that however ideal his preachment may be and however righteous his tenets, the man filling teeth will meet obstacles which will at times prevent the achievement of the truly ideal, for he must deal not alone with teeth in normal occlusion, but with teeth in malocclusion; likewise with occlusions disturbed by mutilation through extraction; occlusions changed on account of neglected caries, and elongation of antagonizing teeth, as well as the drifting of adjacent

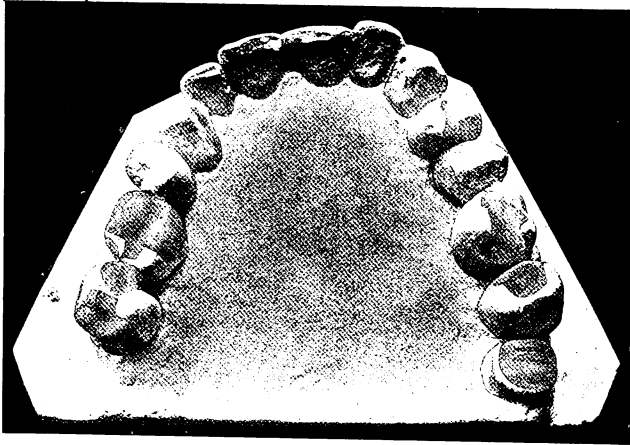


Fig. 1.

teeth; with occlusions altered by the malformations of individual members, and by congenital absences. And perhaps worse than all, with dentures already injured by fillings improperly formed. At this point it may not be unwise to recall a recommendation made by Dr. Ash on this floor this winter, and that is, that where the usefulness of a natural denture has been lessened or destroyed by improper fillings, the dentist might well copy the orthodontist, make study models, and recommend to the patient the removal of all such poor fillings, the same to be replaced by inlays that will restore the teeth to their highest possibilities.

With this thought I will ask permission of the essayist to slightly alter his announced subject, so that it may read, "A plea for the restoration of the normal masticatory function of the teeth, by the use of cast gold inlays."

This, you will observe, does not at all remove us from the need of a complete knowledge of occlusion, but since the dentist cannot correct malocclusions by filling teeth, even though he may produce malocclusions



by so doing, it really is his province so to restore the partially destroyed tooth that it may resume its function of masticating food, and I may add that this restoration demands at the same time that the restored tooth may not interfere with nor disturb any other tooth in either jaw.

**History of  
Filling Teeth  
with Gold.**

At this point it may be well very briefly to consider the filling of teeth with gold, as it has been practiced in the past. Soft gold was used first, and admirably served the purpose of saving teeth. Saving the tooth was about the limit of its useful-

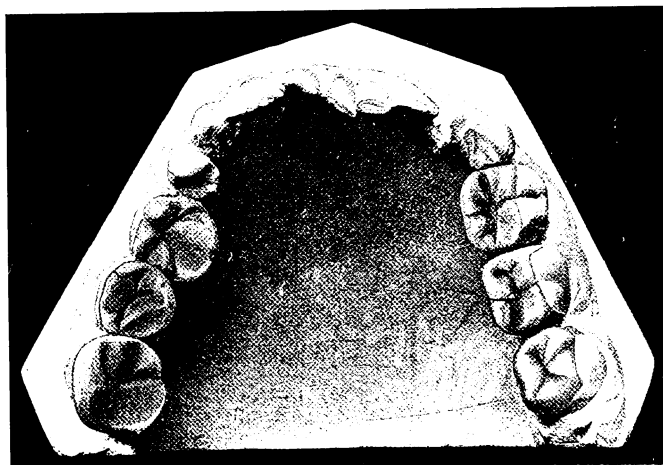


Fig. 2.

ness. With the advent of cohesive foil arrived the demand for restoration of contour, and especially of contact points for the protection of the interproximal space and the soft tissues embraced therein, as well as for the retention of the tooth in its proper place. With cohesive foil the contourists of the past became wonderfully expert in restoring the anterior teeth, and the approximal portions of the posterior teeth. But with the advent of the cast gold inlay, and especially in view of the standards set up to-night, which include a demand for restoration of cusp and sulcus, fossa and ridge, with absolute accuracy, we see how deficient has been the gold foil worker in restoring the most important part of the masticatory apparatus, the occlusal surfaces of bicuspid and molars.

We are compelled to confess that the standard set to-night, not only never has been reached with the foil filling, but that the obstacles are such that it is well nigh impossible. Why? Because it involves the



carving of the cusps and sulci, out of the hard gold, in the patient's mouth. But a greater difficulty lies in the fact that whereas the pattern for the cast inlay being made of wax, the carving may be done with pointed carving tools, when working on the foil filling, rotary cutting instruments must be used, and with these quite different results are obtained. I happen to be quite capable of testifying to this, because since

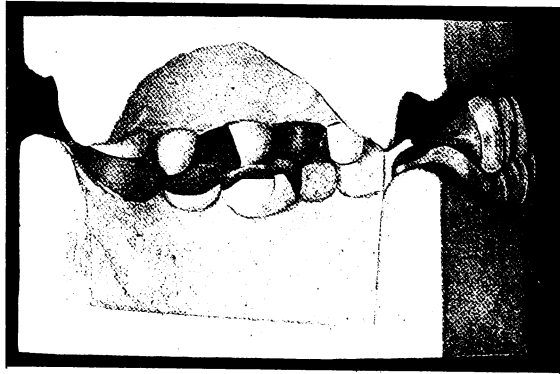


Fig. 3.

Dr. Young first called my attention to this matter of faulty restoration, I have been so dissatisfied with many inlays previously put in by myself that in many instances I have had the patient give me a full sitting that I might attempt to improve the occlusal surfaces of molar and bicuspid inlays, and, indeed, I have greatly improved such as I have done, but at the same time I have learned the impossibility of getting in this way results that can be easily obtained with the cast gold inlay. Yet this would be the procedure necessary if attempting to produce true occlusal restorations with gold foil. Hence it must follow that just as we admit the need for such occlusal restorations, we must abandon the foil filling.

In order to contribute to this discussion and at the same time to exhibit the influence which Dr. Young's previous paper has had upon my own work, I have prepared a few casts showing inlays in the mouths of my own patients, and from these I have had a few lantern slides made.

I will first exhibit casts of a mouth in which I have restored the entire occlusal surfaces of the molars with cast gold inlays, and the case will be instructive, first, because the teeth are in malocclusion, and secondly, because the gold restorations replaced faulty amalgam fillings, the result being somewhat limited in scope by the fact that it was not all done at once. Perhaps the ideal method would have been to remove all amalgam fillings at the outset, study out the best solution of the



occlusal problem, and make and set the restorations promptly. This, however, was not possible in this instance, and the work has really covered a period of several years. Thus the occlusal plane necessarily is the same as at the outset, the teeth really having been treated individually. Fig. 1 shows the occlusal view of the upper arch. The large inlay, in the first molar on the right side, was one of the first inlays I

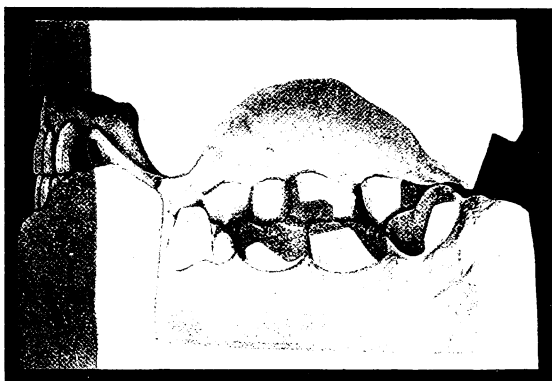


Fig. 4.

ever made, and I was very proud of it. Yet this inlay and all the others in this jaw, all of which were done during the same first year of the work, lack the occlusal configuration insisted upon by Dr. Young, being shaped more like the usual foil filling. There are two amalgam fillings seen in this illustration, one of which (second molar on right side) has been replaced with a gold inlay since this cast was made.

Fig. 2 shows the occlusal view of the lower jaw of the same case, and with it I may point out to the essayist one or two of the difficulties which may occur in practice, which will indicate to him that it is one thing to carve up an inlay, made in an amalgam model of a cavity, and not intended to be actually set in the mouth, and quite another thing to make and carve an inlay which must be set and brought into contact with an antagonizing tooth, in the presence of mutilation and malocclusion. For example, consider the third molar on the left side, and this crown, for it is a cast gold crown, appears not only monstrously large, but the cusp formation is very poor. And here I will admit that were I doing it again I think I could improve on it. But at the time I deemed it advisable to use the hood crown devised by Dr. Chayes. This comprises a platinum band, topped with a platinum plane or floor, over which



## ITEMS OF INTEREST

wax is melted and carved to form the pattern for casting. The bite in this instance is very short. Thus with even a very narrow band, there is very little gold above the platinum floor, and consequently deep sulci were impossible. Next note the second molar immediately in front of the same crown, and at the disto-lingual angle we see a marked depression where there should be a cusp, but if you will examine a lingual view of the occlusion (Fig. 3) you will see that the elongation of the upper



Fig. 5.

second molar has brought its lingual cusp so low that this depression was necessary. I think that the three restorations on this side of the mouth, made prior to the appearance of Dr. Young's paper, will at least show that already I had learned the advisability of producing cusps by casting gold; but the three restorations on the right side, made since the publication of Dr. Young's paper, show, I hope, that his criticism has borne some fruit in improving my own standards, though I admit that even these are far below the artistic examples which he himself has produced. Figs. 3 and 4 show the occlusion from the lingual aspect and indicate that something approaching a useful masticating apparatus may be produced even in the presence of malocclusion.



**The Standard  
Set by  
Dr. Taggart.**

The essayist mentioned that the specimens shown by Dr. Taggart at his very first demonstration indicated that he at least appreciated the possibilities of this work, and it gives me great pleasure to be able to place upon the screen an inlay made by

Dr. Taggart at that early time (see Fig. 5, the second upper molar).

This inlay is still in place, with perfect margins, and unmarred by the



Fig. 6.

forces of mastication, which shows that even pure gold, which Taggart has always recommended, is hard enough if the occlusion is perfectly restored. The inlay in question is seen in the second right upper molar. The third molar has an old-fashioned foil filling. The first molar shows a large cast gold inlay, made by a prominent dentist in the East, and it is curious that with a specimen of Taggart's work immediately before him he still made a perfectly smooth occlusal surface, which shows how difficult it is to put aside the habits of years of working with foil. When the patient came to me this winter, I found approximal cavities in this molar and in the bicuspid. The first model was made when these two cavities were filled with gutta percha. I removed a small part of the gold inlay in the molar, and made an inlay to occupy the mesial part of the tooth. I then attempted to carve up the old inlay with engine burs. The second model (Fig. 5) shows the same teeth after I had placed



inlays in the bicuspid and molar, and carved up the old inlay. The appearance of the molar is not very artistic, but I think an improvement has been effected.

In the next illustration (Fig. 6) I show you an inlay in a second lower molar. It will be noted that the lingual cusps of the bicuspids and first molar are much worn away by attrition, following which the dentine has become typically cupped out in the cusps of the first molar. In

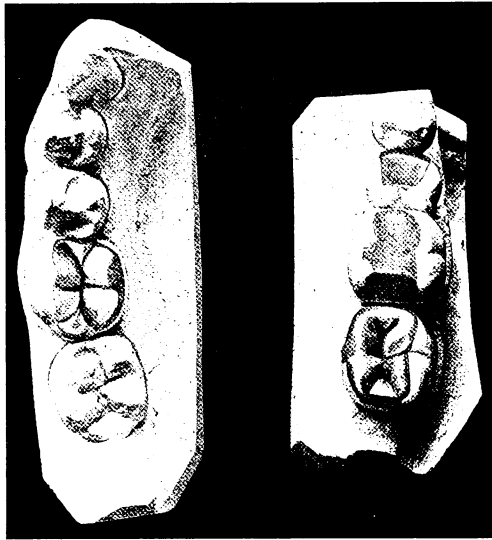


Fig. 7.

carving an inlay for the second molar, which was done in the mouth, I used the first molar as a pattern and copied it. I flattened off the buccal cusp to reduce these to the same occlusal plane as its neighbor, and I copied the cupped-shaped depressions of the first molar because in this manner this part of the tooth would serve better for masticating purposes. I did this, also, as a means of accentuating in this discussion the fact that when dealing with mouths where the normal tooth form has been partially destroyed by attrition, it is not advisable in carving an inlay to attempt to make the tooth, when restored, assume the form that it had when first erupted. The tooth should better be restored to that form which it would have had, had it not been attacked by caries, and this may be learned by a study of the sound teeth in the same mouth, and especially of its fellow if it happen to be present.

Such study of abraded or partly worn teeth will prove, as Dr. Young



has said, that it is the high points of the cusps that are worn away, and thus depressions may be lessened, but this will not matter since necessarily the height of the antagonizing cusp of the opposing tooth must have been proportionately lowered. But the sulci will always be present, and these greatly aid in the proper trituration and escape of food, and hence should be reproduced in the inlay.

I would like to say here that these illustrations of my own work

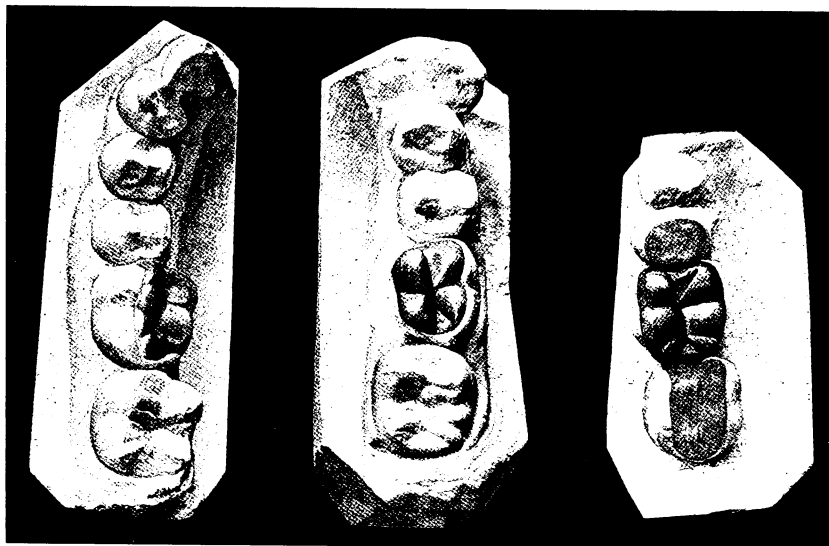


Fig. 8.

are not shown in a boastful spirit. On the contrary, they are introduced as exhibiting a possible evolution toward better results that may be achieved by any conscientious operator, and for the purposes of this discussion I prefer to call attention to the defects in inlays which I have inserted, as being more instructive than would be pictures of better inlays that have been made since.

For example, let us critically examine Fig. 7, in which we see two models which show the right and left side of the lower arch of a patient. In the model to the right observe the gold foil filling in the second bicuspid! Also study the first molar, the mesial half of which is filled with gold, and the distal occlusal and approximal surfaces with amalgam. The bicuspid filling will save the tooth from further decay, but does it not lessen its masticatory function to a great degree? The gold filling in the first molar, filling as it does the great fossa which should receive



## ITEMS OF INTEREST

the large cusp of the upper first molar, utterly destroys the masticating usefulness of both teeth to such extent that undoubtedly the patient would automatically elect to chew elsewhere. The amalgam filling in the distal occlusal surface of the same tooth not only interferes with mastication, but actually invites the crowding of food down its inclined surfaces between the teeth and past any contact point that might be constructed. The second molar contains an inlay many times better than these foil and amalgam fillings, but good as it is, one needs only to compare it with the same tooth on the opposite side of the mouth (see model to left in Fig. 7) to realize that there is still opportunity for a closer copying of nature. In the model to the left (Fig. 7) we see an inlay in the first molar, which is a marked contrast to the same tooth on the opposite side. Here we find the cusp, sulci, fossæ and ridges reproduced, but again by comparison with the second molar immediately behind it, we cannot fail to observe that the surfaces of the cusps in the gold inlay do not possess the modeling seen in the cusps of the natural tooth, and it is nature that the artist dentist of the future will copy till he becomes as skilful in tooth restorations as the sculptor is in portraiture.

In Fig. 8 is seen three models. The one to the left and in the center are the right and left side of the same jaw. The natural teeth were deformed and covered with defective enamel which made the work the more difficult. The inlays seen in the first molars are subject to the same criticism expressed in regard to the last. I call your attention especially to the model to the right of Fig. 8. The inlay in the first molar should be compared with the amalgam fillings in the adjacent teeth, and the real force of Dr. Young's appeal for better occlusal restorations becomes very apparent.

When I showed this cast to Dr. Young a few days ago, he exclaimed, "Fine! A lower molar with seven cusps!" And this comment brings us to a brief discussion of another practical difficulty encountered in making inlays up to the standard. This particular inlay (first molar, third model, Fig. 8) was made as I make all my inlays, according to the teaching of Taggart, by the so-called direct method; that is to say, it was carved up in the tooth in the mouth. As I carved it, and as I cast it, there were but *nine* cusps. When tried in the mouth, however, it was found that the distal cusp was too high, and to accommodate the bite it was necessary to grind this away until practically there were but four cusps. With a bur I then cut the V-shaped groove where I had been using the grindstone with the result that I produced the seven-cusped molar as noted by Dr. Young; but even so, I consider that the inlay in this form is more serviceable as a grinder than had I left the smooth depression made by the stone, which obliterated the distal marginal ridge. Oddly enough, I



later came across a molar formed almost identically like my seven-cusped inlay. It is seen in the adjacent model (Fig 8, center). Of course it is a second molar, though, I do not know that a second molar is more legally entitled to seven cusps than a first molar.

**Obstacles  
to be Overcome.**

Let us revert for a moment to the question of restoring occlusion. Dr. Young has made an appeal for the restoration of occlusion when filling teeth, and he has demonstrated the possible restoration of tooth form, but he frankly admits that he has had no practical experience in making gold inlays, and consequently he has not been able to supply us with a technique for actually restoring the occlusion in practical cases. He has simply carved inlays out of the mouth, restoring tooth form. As it happens this is exactly the method which I pursue in the mouth. For, as I have the rubber dam in place whenever it is possible to have it, and as I carve the inlay wax directly in the cavity, I have no guide whatever but a general knowledge of tooth forms, and it is not strange therefore that not infrequently I guess wrong, and so find my inlay, when cast, too high for the occlusion, however pretty the carving may be. Some men say they take a "mush bite," so called, before carving the wax. This has not been satisfactory to me. Others carve the inlay, and then try in the wax, allowing the patient to close the bite. In this way I have a few times spoiled in one moment an inlay that I had spent thirty minutes in carving. In any event, it is a risk to the margins to try a wax pattern in the mouth and have the patient *grind* upon it, and a mere *closure* does not disclose the interference which may develop under a free movement of the mandible. There are various methods suggested for obtaining the true occlusal bite, but I need not discuss them here. It is my belief that with a thorough knowledge of normal tooth forms, and of abraded tooth forms, and with practice in carving, one may become so dexterous in carving the wax that when the finished inlay is seated, it will not be too high. In any event, these high points should develop on the cusps, and consequently, if the sulci and grooves have been made deep enough, the correction of the inlay may be made after the gold is cemented to place, by using a carbon paper and grinding with the  *tiniest*  of carborundum stones. Even if not as artistic as the beautiful specimens shown by Dr. Young, inlays made in this manner will be far more useful, and nearer to true form and occlusion than are most of the inlays, or any of the foil fillings now being made.

Dr. Young has said that after carving the wax and reproducing it in gold it would be better to set the inlay as it comes from the mold rather than to mutilate it in the polishing process, and with this I agree.



## ITEMS OF INTEREST

But if the carved wax be polished with oil of cajuput, and then properly invested and cast, no finishing will be required that cannot be done with burnishers. For this I use tantulum burnishers, but since adopting Dr. Young's dictum as to making deep and sharp-pointed sulci, I have been obliged to reshape one tantulum burnisher for the special purpose of burnishing the sulci. Perhaps it would be nicer to say that Dr. Young kindly shaped it for me. It is practically a hatchet with a dull edge.

The difficulty of discussing a paper with which  
**Dr. H. W. Gillett.** you agree from A to Z confronts me at the present moment. I think perhaps I can best open my remarks by reading a page from a journal in which was printed a discussion of an earlier paper by Dr. Young on this same subject. It presents what I wish to say quite as clearly as I can do it at the present time, and is equally applicable to the present paper.

"It has afforded me great satisfaction to read Dr. Young's paper, having asked the privilege as soon as I received the announcement of this meeting.

"I was interested because I have been gradually developing along the same lines, and arriving at the same conclusions with regard to the need for much greater attention on our part to those features of our inlay and crown work which Dr. Young has touched upon. I am heartily in accord with his statements as to the need for, and the possibility of, reproducing the anatomical forms of the occlusal surfaces of the teeth. I have had the same complaint as to inefficiency in trituration of food in cases of extensive restoration of occlusal surfaces.

"I am free to admit that it is not long since I considered such inlays as he has criticised to be all that could be expected of us and sufficient to the needs of the case. I am sending by his hand a duplicate of a practical case involving three teeth, which six months ago I considered satisfactory, and which I now consider faulty in the omission of the grooves at the bottom of the sulci and in other respects. It shows an advance over the flat cusplless inlay commonly seen, and provides for cusp interlocking, but falls short of restoring practical efficiency for food trituration. Gradually I have developed a keener appreciation of the value of the cusp relations, in my association with Dr. Ferris, in the consideration of cases of combined orthodontia and prosthodontia. More recently I have come to regard my earlier cases of even-surfaced inlays with almost as keen regret as I do the few cases of first molar extraction, which fell to my lot in the orthodontic efforts of my earlier years of practice.

"It is perhaps worth while to say a word in recognition of the



reasons why we at first produced only flat inlays. Through all the previous generations of our profession, fillings that should actually reproduce, or even approximate, the anatomical character of occlusal surfaces were impracticable, if not impossible, and at first in our inlay work we had quite enough to do to successfully adopt the wonderful new principles brought to us by Dr. Taggart, and to cope with the difficulties of marginal fit and secure anchorage. It was natural that at first we should have been content to attain results similar to our standards in gold foil and amalgam work.

"Now that the factors of fit, anchorage, and casting technique are so well in hand, it behooves us to give heed to Dr. Young's plea, and I personally desire to thank him for assistance rendered in solving the problem. I am actively at work to bring my laboratory technique up to the standard he has shown you, and while it is not easy to develop such standards in the hands of our laboratory assistants, it is possible, and I am convinced that to stop short of the mark he has set us will be to fail in our plain duty."

Those last sentences will indicate what many of you already know—that my own technique is quite different from Dr. Ottolengui's—that the development of these surfaces goes on in the hands of assistants. I could not carve half as good an inlay myself as my laboratory assistant does. Dr. Ottolengui shakes his head, but I think I am right.

I am very much interested in the subject Dr. Young has presented so cogently, and interested in the possibilities it leads up to. At the risk of departing just a little from the actual subject before us, I want to voice a thought or two concerning a lead he has given us. Something Dr. Ottolengui said touches upon the same thought—in fact, I think Dr. Ottolengui's remark is the better one to use for the thought I have in mind. Dr. Ottolengui referred to the possibility of treating individual dentures as units in our work, having in mind, I think, both operative and prosthodontic work. It has been a habit with me for some time past, in all important cases coming to me in which there was mutilation of the masticating organ, to endeavor to treat the whole denture as a unit by making accurate plaster casts, and studying the case as a whole, and if possible interesting the patient so it might be taken up on a definite plan at the start, so that the restoration of no one tooth should be considered except in harmony with the general plan.

One of the thoughts that has been in my mind for some time has been the desirability of having provided for us in some way a set of reproductions of the different types of teeth at different ages, so that in these carvings we might have—particularly those of us who put this work in the hands of assistants—definite examples to set before them



## ITEMS OF INTEREST

which would be more effective in helping them than are the pictures in "Black's Anatomy." To some degree that is what I have done with my assistants. I have sometimes taken impressions of corresponding teeth on the other side of the mouth, and when the amalgam die was produced, a die was also made of the corresponding tooth so they might have some guide with regard to the conditions in that individual mouth.

It seems to me there can be no longer any satisfactory excuse for those deplorable chunks of gold that have been called "inlays." I suppose they are inlays, but I regard those finished on the old lines of our foil and amalgam fillings with no reproduction of anatomical features as being unworthy of the name.

**Dr. Chayes.**

They are "outlays."

I think Dr. Chayes has the right name for them.

**Dr. Gillett.**

Or perhaps we might say "incomes." There can be no definite excuse for a man's accepting the money from his clientele—no excuse for continuing to place in his patients' teeth the inlays that pleased us so much when we began. There was then, in my estimation, a legitimate excuse.

Dr. Van Woert was one of those who woke up very early to the possibilities of something better. I think perhaps his trip to Chicago bore fruit sooner.

It seems to me I can add little more to what I have said. Just the repetition of the final words of what I read to you, that I am convinced that to stop short of the mark set us by Dr. Young is to fail in our plain duty—comprises the whole story.

**Dr. W. D. Cracy.**

My commentary on this paper will be very brief; and in order that I may make it brief, I will use a quotation I saw recently in a dental journal: "The supreme mark of wisdom is the willingness to abandon an excellent thing for a better thing."

I abandoned some inlays I used to make. They were two-piece inlays. The outer shell was soldered to the inner shell, and I thought they were excellent things at that time. I abandoned them for the cast gold inlay, and as soon as I learned something about the needs and requirements of contour, I gave up a good thing for a better thing—for the cast inlay which has contour. There is no opportunity to take exception to the main points in the paper, and I am convinced that to give efficiency in mastication we must adhere to the normal anatomical outlines as closely as possible, and we must supply a normal anatomical restoration, if we expect to get an efficient result in mastication.



## SOCIETY DISCUSSIONS

**Dr. Hoag.** I want to thank Dr. Young for his paper, and also for the paper he read in Boston. I was very much helped by that first paper. One thing that was not brought out to-night I think is more important than some of the orthodontia, and that is its relation to our work in pyorrhea. I think those grooves are very important. No matter how I made my fillings and inlays to fill interproximal spaces, the food would squeeze down in between the teeth; but the marginal ridges seem to turn aside the food—like our little old-fashioned “thank-you ma’ams” in our roads in the country.

Where the teeth occlude properly, we have the fissures running out to the side. Dr. Young showed that in every one of the pictures to-night. I thank him very much.

**Dr. Young.** I am both pleased and disappointed with the discussion my paper has received: pleased because it is human to like to be “patted on the back”; disappointed because I hoped that many of you would express exactly how I know you feel; that the whole thing is impractical.

Gentlemen, I have cultivated the habit of hearing people think.

I have heard many of you say to yourselves, “All right to talk about, but impractical to do in the mouth. Takes entirely too much time for which we will not be paid.”

To those of you who hold to that opinion I have nothing to say.

I wish to make an appeal, however, to the younger men—those of you that have time at your disposal, to use your best efforts in every case that you treat so that each one may be better than the one preceding it. If you do this you will find that your practice will gradually increase and that your patients will be so pleased that they will be referring patients to you.

Another point that I did not touch on in my paper was referred to by Dr. Hoag in his discussion, namely, interstitial gingivitis, due to improper shaping of the occlusal surface of fillings and inlays. If you will carefully examine the occlusal surfaces of the human teeth you will find a mesial and distal marginal ridge on each bicuspid and molar. On closer examination you will notice that the incline of this ridge toward the approximating tooth is much smaller than on the opposite side toward the sulcus in the tooth. In masticating, these normal marginal ridges prevent fibrous foods from being forced past the normal contact point except in minute quantities. These small particles are readily taken care of by the normal gum septum.





Failure to reproduce these marginal ridges in fillings of various descriptions has been, in the opinion of the writer, one of the greatest causes of interstitial gingivitis.

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## **Second District Dental Society.**

### ***Appeal to Judges and Magistrates Against Illegal Practitioners.***

The following letter, signed by the officers of the Second District Dental Society, was sent to the judges and magistrates before whom illegal practitioners of dentistry are brought for trial. The society, on recommendation of its law committee, sent out this letter because of the fact that several unlicensed men after conviction were released on suspended sentences, and the society believed that the courts did not appreciate the magnitude of the offenses committed. The letter was exceedingly well received and all convicted practitioners since have been punished. This letter was ordered published by vote of the society, because it was thought that it might be of advantage to prosecutors in this State as well as in other States.

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*To His Honor Judge \_\_\_\_\_.*

DEAR SIR: We, the officers and members of the Second District Dental Society, of the State of New York, would respectfully lay before you certain facts relative to the illegal practice of dentistry in this State, and especially within the Second Judicial District.

The New York State Dental Society is a corporation into whose care the State has intrusted the onerous duty of protecting our citizens from the dangers that must accrue from the practice of dentistry by unqualified men. You are, of course, familiar with the statutes which describe the course which must be pursued in order to be admitted to legal practice, and the penalties for infringement of the law. To the State Dental Society has been delegated the duty of seeking out and procuring evidence against those misdemeanants who undertake the practice of dentistry without complying with the requirements of the statute. But the State does not supply any funds with which this police work may be carried out, beyond paying over to the State Dental Society the fines that may be inflicted by your Honors, upon conviction.

In order to facilitate the work, the State Dental Society has arranged its law committee so that there is one member in each district,



## SOCIETY DISCUSSIONS

and it is especially in regard to recent events in the Second District that this communication is sent. Within a brief period, we have presented cases against five men, all of whom have been convicted. One man was fined \$150, and in the cases of the other four, sentence was suspended. In order to procure the evidence upon which these convictions were had the law committee member of the Second District was obliged to expend \$900, and we would respectfully submit that the receipt of one fine of \$150 and four suspended sentences is a most discouraging result, and indeed, an impossible one if the work is to be continued.

When our society advances the means for obtaining evidence against these offenders, we are undertaking a large and unselfish public duty. These illegal practitioners are in no sense business competitors of the members of our society, and nothing but a sentimental love of our profession, and a knowledge of the fact that we are the best instruments that the State can employ for prosecuting these offenders, compels us to undertake the work at all. But neither the State nor the Municipality can reasonably expect us to sacrifice our time, and our own interests, and also spend our money, in this work, with no opportunity of being repaid.

We do not at all inveigh against your Honors' right to suspend sentence in any case where the convicted person seems worthy of sympathy. But we would respectfully submit that this is rarely the case with the class of offenders with whom we are dealing. Practically all of them know the law, and defy it. Moreover, they know that spies of our society are watching them, and they likewise know that one of the city magistrates has ruled that to do one dental operation is not practicing dentistry, and that therefore we are compelled to produce proof as to at least two operations. The proprietors of these illegal dental offices therefore usually have two or more men illegally employed, and after a man has served one patient once, the patient is given to a different operator at the second visit, and so on until the proprietor is sure that the patient is not a spy. Men against whom we have obtained convictions, but who have been released under suspended sentences, have brazenly gone back to their offices and resumed practice. But it is next to impossible to obtain legal proof of this.

These are facts, but the real purpose of this communication is to place before you for consideration other facts with which we are sure that you are not familiar. We cannot escape the conviction that your Honors would not release these men on suspended sentences were it not for the idea that you must have that the

**Viciousness  
of Illegal Practice  
Not Appreciated.**





## ITEMS OF INTEREST

offense itself is but a technical breach of law, and in itself of trifling consequence.

But quite the contrary is true. The dental profession is at present engaged, throughout the entire world, upon a vast campaign of education, under the general title of Mouth Hygiene. This bids fair not only to rival, but to surpass the tuberculosis crusade. It will surpass that great movement in importance, because while that deals with a dread and deadly scourge, the unhygienic mouth is an even deadlier peril; the more dangerous because it is so little suspected, even by men of that high intelligence which is invariably found upon the Bench.

It is not the purpose of this letter to write a treatise on Mouth Hygiene, but we do wish to call your attention to the fact that one of the greatest living authorities upon the causes of diseases of an infectious nature, the celebrated Dr. Hunter, of London, England, has declared that the most potent factor in the breeding of infectious disease is bad dentistry, what he calls "septic dentistry." We could easily prove to your Honors, had we the opportunity, that inefficient dentistry, such dentistry as is always delivered to the people in the illegal "Dental Parlors," actually produces a great deal of the infectious disease that is prevalent; and you know, without our telling it, that infected persons spread infection whithersoever they go.

These illegal practitioners, therefore, are not only a direct menace of a most serious character, to the health of a community, but indirectly also; for, by their methods of attracting patients, they monopolize the patronage of the poorer people, so that the young graduate fresh from college, anxious to put into practice the advanced methods that he has just learned, finds it next to impossible to gain patrons. In a short time, in order to earn a living, he is forced to abandon his professional ambitions and his professional conscience and seek a certain salary by hiring himself out to these dental parlor proprietors. Working for such men he soon learns that his high ideals cannot be put into practice. These men are working solely for pecuniary profit and the welfare of the patient is never considered. Thus a possibly good dentist is debauched, and the nefarious business is fostered.

We respectfully submit, your Honors, that all this is bad enough when these sharks limit themselves to hiring poor graduates, but not satisfied with this they do not hesitate to engage men who have either failed at college, or who have never even attended college.

The arrest, conviction and fining of these younger men may seem a hardship; but it is not, if we consider the harm that they are doing to a community which has a right to believe that any dentist openly practicing dentistry has been declared qualified so to do by the men appointed





by law to safeguard the public health by examining and licensing these men.

And we respectfully beg of your Honors, instead of suspending sentence in these cases, that for a few years, at least, you co-operate with us, to whom this duty has been entrusted by the State, and that in all cases you inflict the heaviest sentence possible under the statute.

This may seem an oppressive request, but it is not. We firmly believe that the statute is entirely too lenient. Instead of a misdemeanor, it would be to the interest of the people at large, if the illegal practice of dentistry were made an indictable crime. In such case the dentists of this State might stop playing policemen, and let our district attorneys and health boards safeguard the people.







From this issue of *ITEMS OF INTEREST* we anticipate will be dated the beginning of a revolution in the art of filling teeth. In the past the main object of filling teeth has been to save them from further destruction by the ravages of caries. In the future there will be the additional demand that tooth form shall be so accurately restored that the masticatory function shall be rendered fully efficient. The announcement by Wm. H. Taggart of his cast gold inlay process made such restorations possible. The paper by J. Lowe Young, published in this issue, makes them obligatory upon every conscientious operator. All that remains is the education of the dental profession up to the duty that is now present, and the development of the technique by which the highest achievement may be attained. To this cause the pages of *ITEMS OF INTEREST* will be devoted.

**Gold Fillings  
of the Past.**

Time was when the gold used for the filling of teeth was known as "soft gold," and later as "non-cohesive" gold. In the pioneer days the skilled dentists saved teeth with soft gold. All honor to the pioneers for their success in saving teeth when the saving of teeth was





the paramount object of dental service. Fillings in those times were known as "stoppings," partly, perhaps, because they "stopped caries," but more particularly because they "stopped" the hole, as a glass stopper or cork fills the hole in a bottle.

The characteristics of soft gold were such that it was most successfully applicable to cavities having surrounding walls, cavities, for example, in occlusal surfaces of molars, with all walls intact. Where the approximal part of a tooth was wholly or partly lost, the cavity often was filled flush, thus becoming an inclined plane, inviting food to pack between the teeth.

With the discovery of the cohesive quality of gold a revolution in filling methods was rapidly instituted, and such men as Dwinelle, Marshall and Webb astounded their confrères with clinics at which they demonstrated the possibilities of the "contour gold fillings." The standard was changed, and in the absence of any part of the approximal portion of the tooth it soon became the rule that with cohesive gold the dentist should replace the lost part. Thus corners were built on and incisal edges; entire teeth, even, were built up, the immortal Atkinson demonstrating the use of heavy foils, Nos. 60 and 120, and even heavier, to facilitate such work.

The art of making contour gold fillings grew, and hundreds became proficient, until at length it was thought that the dentist could replace any part of a carious tooth with cohesive foil.

Thus from the mere saving of teeth the art progressed, so that to a great extent the usefulness of the organ likewise became a part of purpose of inserting a filling. Then G. V. Black and others preached especially the restoration of approximal contact points, that the gingiva might be protected, and they demonstrated that much disease, with consequent loss of dental organs, was directly traceable to failure on the part of dentists to properly restore approximal contour and establish approximal contact.

Finally J. Lowe Young, an orthodontist, and therefore a student of normal occlusion, and fully cognizant of the importance of such occlusion to the health and well being of the patient, brings to our attention the fact that we have not made full use of the grand opportunity to restore the masticatory apparatus presented to us by Wm. H. Taggart.



## ITEMS OF INTEREST

### **Cast Gold Restorations.**

In the past we have contoured teeth, but we have not contoured them to the extent implied by the word "restore." The contourists have replaced corners, have built up incisal edges with fair accuracy, and they have even rounded out the approximal or circumferential shapes of teeth. But they have wofully failed to even fairly well imitate the occlusal surfaces of bicuspid and molars. Perhaps never until now has the dental world been fully aroused as to the importance of restoring occlusion. The orthodontist and the prosthodontist have far outstripped the dentist in this respect, but the time has now arrived when the dentist must awaken and grasp the need of making occlusion the fundamental principle of this every-day work.

Any child would tell us "teeth are made to eat with." The great Master so formed these organs that they would not only "eat," but "eat" well. The slightest loss of any part of the masticating surface of a tooth, the most minute change in its designed form, diminishes its usefulness as a masticatory organ to just that extent. Reversely, where a part or all of the occlusal surface of a tooth is lost, through caries, the more nearly the dentist succeeds in restoring its original form, the more perfect does he make the patient's ability to masticate his food.

### **Gingival Protection.**

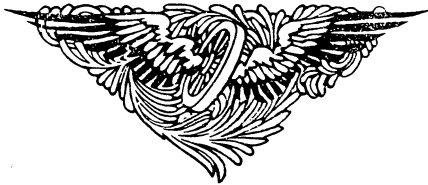
Hundreds of articles have been written upon the need of restoring approximal contact as a protection to the gingiva which normally fills the interproximal space. But a close study of the anatomy of the region will demonstrate that the contact of adjacent teeth is only one of Nature's measures for the protection of the gingiva, and not the most important. At the approximal margin of the occlusal surface of molar or bicuspid will be found a marginal ridge with its most slanting plane extending toward the center of that surface, and therefore away from the approximal space. These marginal ridges lead down into gutters, which in turn carry the escaping food lingually and buccally, so that in the normal state the contact points need be but small rounded surfaces, as they are, to prevent food from crowding down against the sensitive and easily injured gingiva. Thus the absolute copying of Nature in the restoration of occlusal surfaces of molars and bicuspid not only increases the masticatory efficiency by supplying cusps and fossæ, but protects the



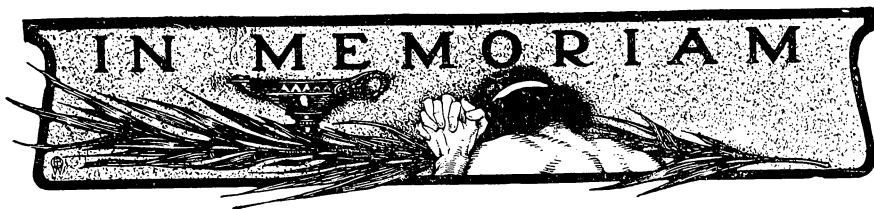


soft parts and preserves them in a state of health because of the marginal ridges and sulci.

We urge our readers, therefore to carefully study Dr. Young's paper and to apply themselves to the prompt acquirement of the technique of cast gold restorations, for the day is dawning when patients will demand that the dentist as well as the prosthodontist and the orthodontist shall make his highest aim the restoration of occlusion to as nearly normal as may be. This cannot be done with gold foil. Thus cohesive foil will be superseded by the inlay, just as it took the place of soft foil, because the American dentist will never be content with less than the highest standard of achievement.







### **Dr. Wilbur F. Litch.**

#### **Resolutions of the American Academy of Dental Science.**

Wilbur F. Litch, D.D.S., M.D., an Associate member of this Society, died at Philadelphia, December 25, 1912.

Dr. Litch was best known to our society through his publications and his school work, for we missed to a large extent his personal contact with our members.

Throughout his long and useful life he was always laboring for professional betterment.

As a practitioner, he was able and skillful; as a teacher, scholarly and effective, and his loss is greatly to be deplored.

Be it, therefore, *Resolved*, That we spread upon our records this testimonial of his worth and record our deep sense of a great loss.

And be it *Further Resolved*, That a copy of this resolution be sent to the Dental magazines for publication, and a copy sent to his widow.

(Signed) EUGENE H. SMITH,  
WILLIAM H. POTTER,  
WALDO E. BOARDMAN,  
*Committee.*

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### **Dr. William Price Richards.**

Resolved, on the death of Dr. William Price Richards, of the Central Dental Association of Northern New Jersey:

*Whereas*, Dr. William Price Richards, an honored member of this Society, having been removed from us by the Divine Providence, it is fitting that we should at this time make record of the event and of the great loss thus sustained; therefore be it

*Resolved*, That by his genial disposition, estimable character and love for his chosen profession he has endeared himself to his associates and won their lasting esteem and affection by his untiring efforts in their behalf and for the advancement of dentistry.





As a true friend and earnest worker he will never again take part in our proceedings; never again will the warm grasp of his friendly hand be felt; no more will his cheery words be heard, nor will his smile help to brighten our meetings.

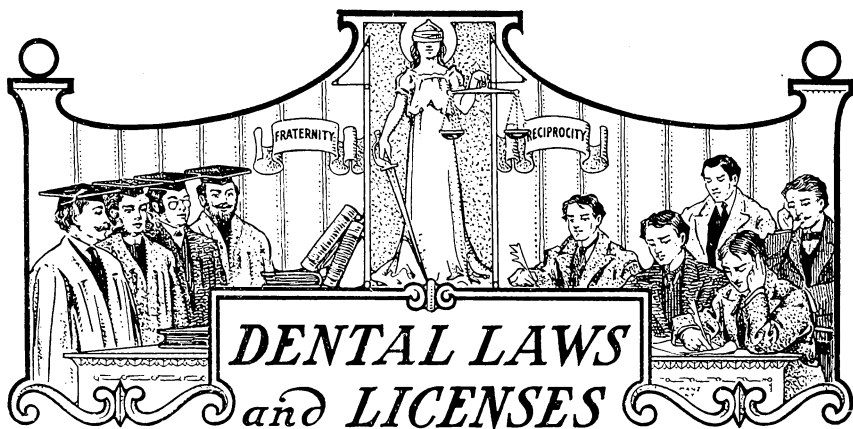
*Resolved*, That our sympathies and condolence be extended to his family in their bereavement. While such a loss is irreparable, we cannot but be grateful to the Giver of all good that he was permitted to live such a long and useful life, by which we have all profited.

*Resolved*, That these resolutions be incorporated in the minutes of our Society and that a copy be transmitted to the family of the deceased, and also to our dental journals.

W. F. BARRY,  
H. S. SUTPHEN,  
G. W. WAKELEY,  
N. M. CHITTERLING,  
RALPH WALDRON,  
*Committee.*







## The Aiding and Abetting of Illegal Practitioners by Registered Dentists.

By HENRY SCHWAMM, D.D.S., LL.B., of the New York Bar.

The case of *Gordon vs. Krimmerman* (Municipal Court of the City of New York, Sixth District, January, 1913) is of interest to the profession at large, and deserves special attention from our examining boards, dental societies and legislative committees, as it clearly illustrates the insufficiency of the present dental laws and the feeble enforcement of the same. The very able opinion of Judge Oppenheimer, before whom this case was tried, reads in part as follows:

**Opinion of  
the Court.**

“About three years ago the plaintiff, a poor woman having three children, suffered from a toothache and called upon the defendant for treatment. Off and on he treated her a number of times in the course of many months. In the beginning of the treatment he extracted six teeth. Then he made a bridge for her teeth, and later on, a plate. The bridge subsequently broke.

“I find, as a matter of fact, that the defendant gave the plaintiff a warranty that his work was properly performed, and that it would remain in good condition for ten years. The charge of negligence and malpractice was substantiated by Dr. S——, a dentist who treated the plaintiff professionally. He made a very favorable impression upon me regarding his truthfulness and expert ability. I firmly believe that the teeth were improperly extracted by the defendant, and that the bridge



## ITEMS OF INTEREST

and the plate were defectively made and did not fit the mouth of the plaintiff.

“ ‘Doctor’ K——, the defendant, admitted upon the witness stand that he never had a license to practice dentistry. He also admitted that he was twice arrested and convicted for practicing dentistry without a license. His nefarious business is most reprehensible and is deserving of severe condemnation. He claimed, however, that he had two very able and licensed dentists in his employ at the time the plaintiff called upon him, and that they did all the scientific work for the plaintiff. I believe, however, that the defendant himself personally attended and did dental work upon the teeth and mouth of the plaintiff. Even if the defendant’s employees were licensed, that would not be a protection to the defendant. ‘Doctor’ K—— testified that the work was skilfully and scientifically done by his so-called able assistants, but they were not called by him as witnesses. His testimony was endorsed by that of Dr. G——, a young man who claimed that he purchased K——’s dental establishment, and stated that the said K—— is now in his employ.

“The defendant is absolutely unworthy of belief. Much feeling was exhibited upon the trial, and the defendant’s attorney accused Dr. S—— of instigating this lawsuit against K——. Dr. S—— denied the allegation, and stated that he was also a member of the Bar of this State. There is no evidence that Dr. S—— did encourage this litigation, and if he did, I think he was justified in so doing. I believe that the mistreatment of the plaintiff by the defendant was most criminal.

“The defendant makes various technical defenses, one of which is that the suit is barred by the Statute of Limitations. . . .

“The defenses of the defendant are only worthy of a man who has deliberately, wantonly and negligently committed a wrong upon the plaintiff.

“I will render judgment on the merits for the full amount sued for, namely, five hundred dollars and the cost of the action. . . .”

### **Opinion of the Author.**

The characterization by the Court of the defendant’s work as “most criminal” applies to every step of the same. The six teeth extracted, four of which were anteriors, were replaced by a five-tooth bridge which did not articulate with the lower denture. The “bicuspid” dummy had no cusp and the two gold crowns placed on a central and lateral incisor were too high, rendering normal occlusion impossible. The diameters of the crowns were much too great, and consequently, in a few months, pus and débris took the place of the cement. Finally the bridge came off and the two destroyed centrals had to be removed. With the



## ITEMS OF INTEREST

lower plate the plaintiff was more fortunate, as she never put it in her mouth.

In defense of his act defendant put upon the stand a licensed dentist, who acted as an "expert." This "expert," who is about twenty-three years old, testified that he is "duly licensed the third year," but, "had been a dentist all his life." That "the work could not have been done better; that the reason there were only five teeth in place of the six is because when six teeth are extracted the gum shrinks till there is only room for five." Finally, he testified—and this is the point—that he now owns the dental parlor which formerly belonged to the defendant, and that he now employs the defendant in his dental parlor because he, the "expert," has another office. To a question why, if he owns defendant's dental parlor, he does not put out his own name, he answered, in substance: "Because I find it more profitable to do business under defendant's name." In other words, this registered dentist, instead of practicing under his own name, prefers "to do business" under the name of one who has been convicted twice for illegal practice, and against whom the above-quoted judgment has been rendered.

If this sworn statement is not true, and has simply been made to protect the defendant, then it is needless to mention here of what this "expert" is guilty. If it is true, should there be any room in the dental profession for such members? In Utah or California, this dentist would have his license revoked *ipse facto*. A section of the statute regulating the practice of dentistry in the latter State reads:

### Revocation of License.

Section 21½. "Any dentist may have his license revoked or suspended by the Board of Dental Examiners for any of the following causes: . . .

I. . . . .

2. For unprofessional conduct or for gross ignorance or inefficiency in his profession. Unprofessional conduct shall mean employing persons known as cappers, as steerers, to obtain business; the obtaining of any fee by fraud or misrepresentation; wilfully betraying professional secrets; *employing directly or indirectly any student or any suspended or unlicensed dentist to perform operations of any kind*, or to treat lesions of the human teeth or jaws, or correct malimposed formations thereof, . . . *aiding or abetting any unlicensed person to practice dentistry unlawfully.* . . ."

Vague as the dental laws are in the Empire State, there is enough, by implication, to cover such cases. A part of Section 201 of statutes regulating practice of dentistry in New York reads:

"If any practitioner of dentistry be charged under oath before the



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board with unprofessional or immoral conduct, or with gross ignorance, or inefficiency in his profession, the board shall notify him to appear before it at an appointed time and place, with counsel, if he so desires, to answer said charges, furnishing to him a copy thereof. Upon the report of the board that the accused has been guilty of unprofessional or immoral conduct, or that he is grossly ignorant or inefficient in his profession, the regents may suspend the person so charged from the practice of dentistry for a limited season, or may revoke his license."

In nearly every case of criminal or civil prosecution of an illegal practitioner, a licensed dentist appears as protector of the malefactor posing either as an employer or as an employee, yet it is hard to find a case where the law committee of the Dental Society has taken steps against such a dentist.

A few months ago a warrant was obtained against an illegal practitioner "tipped off" and the warrant could not be served, but his business continued uninterrupted, for a licensed dentist took his place, and has been conducting it ever since, under the fugitive's name. Another illegal practitioner "with a past" was reported not only to be practicing again, but to have his name as "Doctor" in the telephone directories. The agent said "No evidence could be obtained against him," and "that he has a registered man with him." But "by some strange psychological process he arrived at the conclusion" not to insert his name as "Doctor" in the very next issue of the directory. The dentist who is connected with this "Doctor" and doesn't know the status of his employer must be "delightfully innocent."

And so the aiding and abetting of these enemies of the dental profession and of the public at large, is carried on by the "system," consisting of licensed dentists on one hand and agents on the other, while the most influential members of the profession remain indifferent.

Besides the legal and moral phase, there is an economical aspect to the problem of the professional parasites. Next to the public, the greatest sufferers by these imposters are those dentists who by force of circumstances are compelled to locate in poor sections and display prominent signs, which, with some exceptions, are not due to bad taste or sinister motives, of their owners, as the code makers take it. In most cases they are used by dentists without "social connection," to attract transient patients as a nucleus to a permanent practice. In other cases, they are used actually to compete with, or to be distinguished from, a dental "parlor." Yet we often see worthy and earnest members of the profession barred from joining the district societies because of a "big sign," while the aforementioned "protectors," like the vermin behind the

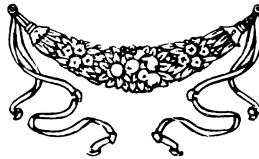


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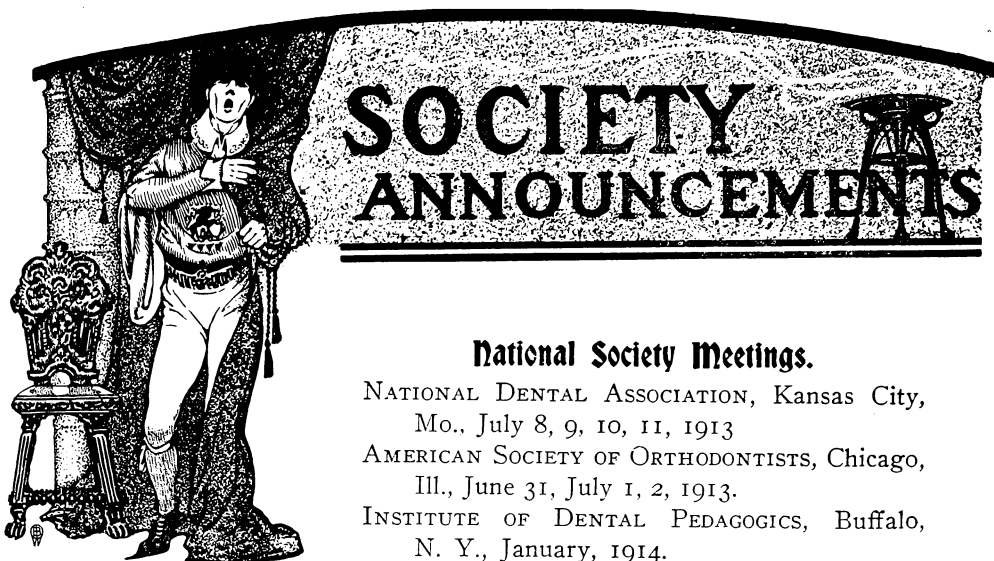
big sign of the dental "parlors" which they protect, hide behind a small sign in some other part of the city, and, of course, find the doors of all the societies open.

This is not as it should be and the editorial in the *ITEMS OF INTEREST* for January, 1913, shows one way out of it.

In the meantime, the dental boards, societies and law committees are not bound by mere forms, nor should they be misled by mere pretenses. They are at liberty—indeed, are under a solemn duty—to look at the substance of things whenever they undertake an obligation toward the profession or enter upon inquiry as to whether a member of the dental fraternity has transcended the limits of professional propriety.







### **National Society Meetings.**

NATIONAL DENTAL ASSOCIATION, Kansas City,  
Mo., July 8, 9, 10, 11, 1913  
AMERICAN SOCIETY OF ORTHODONTISTS, Chicago,  
Ill., June 31, July 1, 2, 1913.  
INSTITUTE OF DENTAL PEDAGOGICS, Buffalo,  
N. Y., January, 1914.

### **State Society Meetings.**

ARIZONA DENTAL SOCIETY, Phoenix, Ariz., November, 1913.  
Secretary, Dr. H. H. Wilson, Phoenix, Ariz.  
CALIFORNIA STATE DENTAL ASSOCIATION, Oakland, Cal., June 2, 3, 4, 5,  
1913. Secretary, Dr. E. E. Evans, Oakland, Cal.  
COLORADO STATE DENTAL ASSOCIATION, Manitou, Colo., June 19, 20, 21,  
1913. Secretary, Dr. A. W. Starbuck, 1340 Arapahoe St., Denver,  
Colo.  
DISTRICT OF COLUMBIA DENTAL SOCIETY, Washington, D. C., June 12, 13,  
14 1913. Secretary, Dr. F. F. Drew, Baltimore, Md.  
GEORGIA STATE DENTAL SOCIETY, Columbus, Ga., June 12, 13, 14, 1913.  
Secretary, Dr. DeLoss L. Hill, Grant Bldg., Atlanta, Ga.  
ILLINOIS STATE DENTAL SOCIETY, Peoria, Ill., May 13, 14, 15, 16, 1913.  
Secretary, Dr. H. L. Whipple, Quincy, Ill.  
INDIANA STATE DENTAL ASSOCIATION, Indianapolis, Ind., May 20, 21,  
22, 1913. Secretary, Dr. Otto U. King, Huntington, Ind.  
KENTUCKY STATE DENTAL ASSOCIATION, Lexington, Ky., May 26, 27,  
28, 1913. Secretary, Dr. C. R. Shacklette, The Atherton, Louis-  
ville, Ky.  
MAINE DENTAL SOCIETY, Portland Harbor, Me., June 25, 26, 27, 1913.  
Secretary, Dr. I. E. Pendleton, Lewiston, Me.  
MARYLAND STATE DENTAL ASSOCIATION, Washington, D. C., June 12, 13,  
14, 1913. Secretary, Dr. F. F. Drew, 701 N. Howard Street, Balti-  
more, Md.



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- MASSACHUSETTS DENTAL SOCIETY, Boston, Mass., May 8, 9, 10, 1913.  
Secretary, Dr. A. H. St. C. Chase, Everett, Mass.
- MINNESOTA STATE DENTAL ASSOCIATION, Secretary, Dr. Benjamin Sandy, Syndicate Bldg., Minneapolis, Minn.
- MISSISSIPPI DENTAL ASSOCIATION, Meridian, Miss., June 24, 25, 26, 1913. Secretary, Dr. L. B. Price, Corinth, Miss.
- MISSOURI STATE DENTAL ASSOCIATION, Kansas City, Mo., July, 1913.  
Secretary, Dr. S. C. A. Rubey, Warrensburg, Mo.
- MONTANA STATE DENTAL SOCIETY, Butte, Mont., June 13, 14, 1913.  
Secretary, Dr. T. T. Rider, 9 Higgins Block, Missoula, Mont.
- NEBRASKA STATE DENTAL SOCIETY, Omaha, Nebr., May 19, 20, 21, 22, 1913. Secretary, Dr. Wm. A. McHenry, Nelson, Nebr.
- NEW HAMPSHIRE DENTAL SOCIETY, Weirs. N. H., June 18, 19, 20, 1913.  
Secretary, Dr. F. F. Fisher, Manchester, N. H.
- NEW YORK STATE DENTAL SOCIETY, Albany, N. Y., May 8, 9, 10, 1913.  
Secretary, Dr. A. P. Burkhart, 52 Genesee St., Auburn, N. Y.
- NORTH CAROLINA DENTAL SOCIETY, Winston-Salem, N. C., May 28, 29, 30, 1913. Secretary, Dr. J. M. Fleming, Raleigh, N. C.
- NORTH DAKOTA DENTAL ASSOCIATION, Fargo, N. Dak., May 16, 17, 1913. Secretary, Dr. E. N. Hegge, Hatton, N. Dak.
- PENNSYLVANIA STATE DENTAL SOCIETY, Philadelphia, Pa., June 24, 25, 26, 1913. Secretary, Dr. L. M. Weaver, 7103 Woodland Ave., Philadelphia, Pa.
- SOUTH CAROLINA STATE DENTAL ASSOCIATION, The Isle of Palms, June 25, 26, 27, 1913. Secretary, W. Busey Simmons, Piedmont, S. C.
- SOUTH DAKOTA STATE DENTAL SOCIETY, Watertown, S. Dak., May 13, 14, 1913. Secretary, Dr. A. O. Stutenroth, Watertown, S. Dak.
- TENNESSEE STATE DENTAL ASSOCIATION, Nashville, Tenn., June 5, 6, 7, 1913. Secretary, Dr. C. O. Rhea, Nashville, Tenn.
- TEXAS STATE DENTAL ASSOCIATION, Temple, Texas, May 15, 16, 17, 1913. Secretary, Dr. J. G. Fife, Dallas, Texas.
- UTAH STATE DENTAL SOCIETY, Salt Lake City, Utah. June 23, 24, 1913.  
Secretary, Dr. W. G. Dalrymple, 2421 Washington Avenue, Ogden, Utah.
- VERMONT STATE DENTAL SOCIETY, Burlington, Vt., May 21, 22, 23, 1913. Secretary, Dr. P. M. Williams, Rutland, Vt.
- VIRGINIA STATE DENTAL SOCIETY. Secretary, Dr. C. B. Gifford, Taylor Bldg., Norfolk, Va.
- WISCONSIN STATE DENTAL SOCIETY, Madison, Wis., July 8, 9, 10, 1913.  
Secretary, Dr. O. G. Krause, Wells Bldg., Milwaukee, Wis.





### **National Association of Dental Faculties.**

The next annual meeting of the Association of Dental Faculties will take place at the Hotel Baltimore, Kansas City, Mo., beginning at 10 A.M. on Friday, July 4th. The executive committee will meet at nine on the same morning at the same place.

B. HOLLY SMITH,  
Chairman Executive Committee.

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### **National Association of Dental Examiners.**

The thirty-first annual session of the National Association of Dental Examiners will be held at the Baltimore Hotel, Kansas City, Mo., beginning July 7th, at 10 A.M. and continuing until adjournment.

Every State Board holding membership in the Association is earnestly requested to have at least one representative present at this session. Members of all State Boards are invited.

Hotel reservations should be made immediately.

JOHN P. STIFF, President, Fredericksburg, Va.  
T. A. BROADBENT, Secretary, 15 E. Washington Street, Chicago, Ill.

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### **Oklahoma State Dental Association.**

The following officers were elected by the Oklahoma State Dental Association at its recent annual meeting: President, R. S. Parsons, Oklahoma City; first vice-president, N. C. Woods, Ardmore; second vice-president, A. B. Potter, Oklahoma City; treasurer, A. B. Walker, Fairview; secretary, C. R. Lawrence, Enid.

The society unanimously voted to continue the post-graduate feature of the meetings, which is proving to be very interesting and profitable.

Enid, Okla. C. R. LAWRENCE, Secretary.

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### **Union Meeting—District of Columbia Dental Society and Maryland State Dental Association.**

The sixteenth union meeting of the District of Columbia Dental Society and the Maryland State Dental Association will be held in Washington, D. C., June 12, 13, 14, 1913.

F. F. DREW, Cor. Secretary.  
701 N. Howard Street, Baltimore, Md.

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### **Minnesota State Dental Association.**

The thirtieth birthday of the Minnesota State Dental Association will be celebrated by a large clinic and manufacturers' exhibit in Masonic Temple, Minneapolis, Friday and Saturday, June 13 and 14, 1913. A rate of a fare and a third has been granted by the railroads, and a large meeting is assured. For information address,

636 Syndicate Building. BENJAMIN SANDY, Secretary.





### **Southern Wisconsin Dental Association.**

The nineteenth annual meeting of the Southern Wisconsin Dental Association will be held at Hotel Highland, Delavan Lake, June 13 and 14, 1913.

Having decided to combine business with pleasure, we will hold our sessions in the afternoons only, consisting of a few of the best papers and clinics obtainable. The mornings and evenings can be spent boating, fishing, bathing or automobiling.

Hotel Highland and Delavan Lake are seldom equaled, and never surpassed as a place for such a gathering. It is our purpose to take our wives with us, and together enjoy the lake, as well as the beautiful hills and valleys surrounding Hotel Highland. Bring the young folks with you; they will enjoy the outing.

All ethical dentists are cordially invited to attend.

C. W. COLLVER, Secretary.

Clinton, Wis.

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### **Vermont State Board of Dental Examiners.**

The next meeting of the Vermont Board of Dental Examiners, for the examination of candidates to practice in Vermont, will be held at the State House, Montpelier, June 30, 1913; continuing four days. Commencing at 2 P.M., June 30th.

To be eligible for examination a candidate must (1) Be twenty-one years of age; (2) must be a graduate of a High School of the first class; (3) must be a graduate of a reputable dental college.

Applications must be in the hands of the secretary not later than June 20th.

For further information apply to

GEO. F. CHENEY, Secretary.

St. Johnsbury, Vermont.

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### **District of Columbia Board of Dental Examiners.**

The Board of Dental Examiners for the District of Columbia will examine candidates for registration on May 25, 26, 27, 28, 1913.

For application blanks apply to

DR. PARIS E. BRENGLE, Secretary of Board.

1401 I Street, N. W., Washington, D. C.





## **New Jersey State Board of Registration and Examination in Dentistry.**

The New Jersey State Board of Registration and Examination in Dentistry will hold their semiannual examination in the State House at Trenton, N. J., beginning Monday, June 30th, and continuing Tuesday, July 1st, Wednesday, July 2d.

Practical work Monday, June 30th, 8 A. M. sharp.

Theoretical examination Tuesday, July 1st; Wednesday, July 2d, promptly at 8 A. M.

For further information address the secretary.

Applications must be in the hands of the secretary five days prior to the examination.

The business meeting of the Board will be held at 10 A. M. Tuesday, July 1st, and anyone having business with the Board may have an audience.

CHARLES A. MEEKER, D.D.S., Secretary.

29 Fulton Street, Newark, N. J.

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## **Connecticut Dental Commission.**

The Dental Commissioners of the State of Connecticut hereby give notice that they will meet at Hartford on Thursday, Friday and Saturday, June 12th, 13th and 14th, to examine applicants for license to practice dentistry, and for the transaction of any other business proper to come before them.

On receipt of application blank, filled in, and sworn to and accompanied with fee of twenty-five dollars (\$25) each applicant will be sent a number, which number will represent the applicant during the examination.

The practical examination will take place at Putnam Phalanx Armory, corner Haynes and Pearl streets, on Thursday, June 12th. All prosthetic pieces should be tagged with the applicant's number and handed to Commissioners at nine o'clock Thursday morning. Applicants whose numbers range from one to twenty inclusive, will be examined in operative dentistry at 9 A.M. Those whose numbers are above twenty will be examined in operative dentistry at 12 M. All applicants whose credentials are accepted shall be entitled to take both the practical and theoretical examinations. Credentials shall be examined at the Hotel Heublein, Wednesday evening, June 11th, at 8.30; and at Putnam Phalanx Armory at nine o'clock, Thursday evening.



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On Friday, June 13th, the theoretical examination will be held from 9 to 11; 11.30 to 1.30 and 3.30 to 5.30. Theoretical examination will be held at the State Capitol.

By order of the Commission,

D. EVERETT TAYLOR, Recorder.

Willimantic, Conn.

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### Indiana State Board of Dental Examiners.

The next regular meeting of the Indiana State Board of Dental Examiners will be held in the State House at Indianapolis, beginning Monday, June 9th, at 9 A. M. and continuing to Saturday, June 14th. All applicants for registration in this State will be examined at this time. No other meeting will be held until November. No temporary licenses are issued.

The new law requiring annual registration will be in effect about May 15th. The first registration will take place in December of this year. For application blanks and further information apply to the Secretary.

F. R. FENSHAW.

507-8 Pythian Bldg., Indianapolis, Indiana.

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### Massachusetts Board of Registration in Dentistry.

A meeting of the Massachusetts Board of Registration in Dentistry, for the examination of candidates, will be held in Boston, Mass., June 4, 5, 6, 1913

G. E. MITCHELL, D.D.S., Secretary.

14 Water Street, Haverhill, Mass.

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### Nebraska State Board of Dental Examiners.

The Nebraska State Board examinations will be held June 16, 17, 18, 1913, beginning at 9 A.M. on the 16th.

Address inquiries to

J. S. PIERCE, Secretary.

Lincoln, Nebraska.

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### Lake Erie Dental Association.

The fiftieth annual meeting of the Lake Erie Dental Association will be held at Hotel Bartlett, Cambridge Springs, Pa., May 15, 16 and 17, 1913. This meeting celebrates the golden anniversary of this society and the program committee have arranged for the best meeting ever held. Entertainment for the ladies. Come and bring them.

C. L. MEAD, Secretary.

Union City, Pa.